TRANSACTIONS

OF THE

Massachusetts Horticultural Society,

FOR THE YEAR 1887.

PART I.

BOSTON:
PRINTED FOR THE SOCIETY.
1887.

H. V. Smith, Boston.

Marshall P. Wilder

PRESIDENT OF THE AMERICAN POMOLOGICAL SOCIETY

PRESIDENT OF THE NEW-ENGLAND HISTORIC GENEALOGICAL SOCIETY.

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The following papers and discussions have been circulated to some extent in the form of slips reprinted from the reports made by the Secretary of the Society in the Boston Transcript. As here presented, the papers are printed in full, and the discussions are not only much fuller than in the weekly reports, but, where it appeared necessary, have been carefully revised by the speakers.

The Committee on Publication and Discussion take this opportunity to repeat what they have before stated, that the Society is not to be held responsible for the certainty of the statements, the correctness of the opinions, or the accuracy of the nomenclature in the papers and discussions now or heretofore published, all of which must rest on the credit or judgment of the respective writers or speakers, the Society undertaking only to present these papers and discussions, or the substance of them, correctly.

O. B. Hadwen,
William H. Hunt,
Francis H. Appleton,
Committee on Publication and Discussion.

TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

BUSINESS MEETING.

SATURDAY, January 1, 1887.

A duly notified stated meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

This being the commencement of the term of office of the new board of officers and standing committees, the President delivered the usual annual address, as follows:

ADDRESS OF PRESIDENT WALCOTT.

Members of the Massachusetts Horticultural Society:

We are met here once more to review hastily the history of the past year, and to draw from it such lessons as we may, for future guidance.

But we miss one who, through more years than many of us have lived, has been an honored leader in this Society; to whose wisdom, firmness, and fair dealing, in more than one season of impending trouble, this organization has owed very much. Ex-President Wilder became a member of this Society in 1830, about a year from the date of its incorporation. He very soon became a recognized power here, and continued to the end one of our most active associates. In a life devoted to the science and practice of horticulture in all its branches, his more conspicuous services were, perhaps, in the department of pomology; and in this he was pre-eminent, not only in this State but also in the nation. His interest in all our concerns was permanent, nor did he permit the burden, easily borne in truth, of more than fourscore years to interfere with an active participation in the administration of our affairs.

His counsel, cheerfully given, never obtruded, was remarkable in this—that full account was taken of the wants of the present day, and the facts of advance were recognized, and, dispassionately comparing them with the past, he believed that substantial improvements had been made, and that we were on the road to still greater achievement.

The future readers of the history of the Society will find it difficult to believe that this man, so prominent in our records, was equally conspicuous in many other organizations, and was at the same time a busy merchant of the city of Boston. But he illustrated the best charm of horticulture, the relief afforded by it to the tired man of business and to the wearied student. The changes of nature were even more attractive to him than the triumphs of public life.

A fund established by the provisions of his will — by which medals are annually to be given for the encouragement of the cultivation of certain fruits — will forever be associated with his name.

> "Of no distemper, of no blast he died,
> But fell like autumn fruit that mellowed long."

It is my good fortune to be able to repeat this year the favorable financial statement of last year, and I have the pleasure of announcing to you, that on December 1st we were able to pay $30,000 of the mortgage debt of $60,000 which matures in the fall of 1888, and that our only indebtedness today which is not fully provided for by cash in the hands of the Treasurer is the balance of the mortgages, $30,000, and the Stickney Fund of $12,000, due Harvard College in 1899.

Though the Treasurer's accounts cannot be fully presented thus early in the year, it can be stated that the receipts are greater than those of the year 1885 by about $4,000, while the expenditures exceed those of 1885 by about $1,000.

The occupation of the halls by the Japanese and Aztec villages through many weeks has fortunately contributed to give us a larger income than usual, but I must again remind the Society that the conditions of property of this sort, in this portion of the city, have so far changed in recent years, that we must not be surprised at a permanent depreciation of the value of the halls for such purposes as can with propriety be permitted by the Society.

The exhibitions of the year have, upon the whole, been success-

ful; the Spring Exhibition and the Rose Show markedly so. The Annual Exhibition was, even in the absence of one of the most important collections generally shown, crowded with plants of the first merit, that should have had, for a becoming display, three times the floor space that could in our present quarters be given to them.

The Chrysanthemum Exhibition, in illustration perhaps of one of those changes in popular taste which so often occur, did not bring in the usual number of visitors; nor was the show itself equal to those of preceding years — not from lack of skill on the part of our growers, but rather from some unknown climatic conditions of such general influence that collections of this plant appear to have suffered all over this State at least.

The weekly exhibitions through the summer attracted more visitors than ever before, and were of superior merit to those of former years.

Several exhibitors brought to the halls, week after week, collections of our native plants and flowers, unequalled hitherto in number or in the varieties exhibited. Many of them would be valuable additions to our gardens, and all of them were objects of interest.

It seems to me altogether fortunate that we have been able to attract to our halls those lovers of our native plants who have neither the money nor the time to enable them to make botanizing expeditions into the country; and on the other hand to show to another class what they might discover if they expended time and money in a tour through our suburbs; and lastly, very many have examined these displays thoroughly for the purpose of improving their knowledge of our native plants, and learning the correct names for specimens which they may have themselves collected.

The Botanic Garden of Harvard College has made, through the year, a series of valuable and instructive exhibitions. The authorities of the garden have wisely and considerately abstained from the competitions for prizes. It is to be hoped that they will feel encouraged by the success of the past season to go on with the exhibition here of objects of horticultural interest, and that they may also see the way clear to come to us as teachers in some of the many unanswered questions of plant cultivation.

We should moreover have a better knowledge of the diseases of plants. Up to a very recent period we have been satisfied, or rather have been forced to content ourselves, with the study of

disease in its grosser forms — not in the vegetable kingdom alone but in man as well. For instance, we have called a new or foreign growth in the human body by some strange name that generally has only denoted some peculiarity of form or color—the name itself being as irrational as those of some of the Flemish pears. In the same way, again, a certain diseased change in the plum tree has been called a "black knot," and this was the end of it. Whether an insect produced it or not was one of the vexed questions, never answered to general satisfaction, because we had not attained to the methods of exact investigation. We do know now that organisms exist, powerful enough in their unhindered reproduction to sweep away the human race even, and that they exist in forms so minute that they can be discovered only by the most powerful microscope. In this field, therefore, we are beyond aid from the simple observations of the naked eye — we must go to the laboratory of the scientific observer; and I will suggest, for your consideration, whether it will not be well to look forward to the time when, with improved financial conditions, our debt paid, we may do something to help on that scientific work for which our wise fathers seem to have made some provision, in constituting as permanent officers of the Society professors of Botany and Entomology.

It has been suggested, and the proposition seems to me worthy of favorable consideration, that we should gain something in our larger exhibitions by securing, in addition to our standing committees for awarding prizes, the services of distinguished experts from other sections of our country. These experts would, in the nature of things, have standards somewhat different from our own — possibly better, perhaps not as good; but would offer in any competition the guaranty of a disposition on our part to recognize a competent expression of opinion wherever formed. Of course these gentlemen would not be exhibitors, and while it would be a serious loss to our shows if our own judges should be precluded from exhibiting, it does not seem altogether reasonable that they should be competitors, however stringent the rules may be which forbid their taking any part in the determination of awards to the objects exhibited by themselves. It seems to me worthy also of your consideration, whether their arduous services should not receive some compensation in money. With the best constituted prize committees — and the committees of this Society have never dis-

appointed our just confidence in their integrity — there comes into existence a certain local quality, which leads even the honest man to adhere to the established views of things simply because they are the regular fashions of thought; to get into ruts; to award a prize to plants or flowers or fruits because they are as good as similar specimens formerly exhibited. I think we should insist upon improvement if possible; the giving of a prize to a certain degree of merit this year should not be allowed to be, in any sense, a guaranty for such recognition in a succeeding year. The conditions of cultivation remaining the same, let no first prize be awarded except for distinguished merit. Give to our awards that critical quality that shall make a certificate of merit valuable in commerce, as is that of the London Society. It is a complaint in these days that exhibitors care for nothing but the money prizes; may it not in some instances be true that this award has become the only one with a real value? The small sum that goes to the making of a silver medal can be made more worthy of competition than our highest money prize; let us strive to make it so.

At our last annual meeting I called your attention to the fact that our larger exhibitions had outgrown the capacity of these halls. The experience of the past season reënforces all the arguments then used in behalf of some better provision for these more important shows. A committee of members eminently well qualified to consider this subject have, after mature deliberation, recommended to the Society that an effort be made to procure an open piece of ground of at least fifteen thousand square feet, in a convenient situation, for the purpose of erecting thereon a tent or some structure conveniently arranged for the reception and exhibition of large plants; a smaller permanent building in connection with the above to be used for the general purposes of the Society and the smaller exhibitions. If the Society were obliged to purchase this amount of real estate, while it would under existing laws be relieved from taxation, there would still be a heavy burden imposed upon funds devoted most unselfishly to the public education and enjoyment. I sincerely hope that some plan may be devised for helping this Society to enlarge to the utmost its useful work of bringing into the crowded city the refining influences of horticulture.

The Society has made a most generous provision for prizes to be awarded at the Annual Exhibition of this year, which is to be held

in conjunction with the American Pomological Society, and at large expense has procured the use of the building of the Massachusetts Charitable Mechanics' Association for the better accommodation of the united exhibitions. It is matter of doubt, of course, whether the receipts will be sufficiently increased to defray the added expenses; but we must accept in compensation the hope of doing something to encourage the improvement of this most important branch of horticulture; we shall at least be enabled to renew or make the acquaintance of the men who are doing so much for pomology all over our country.

The library still increases in size and usefulness under the devoted and intelligent care of the librarian and its standing committee. Unfortunately the inconveniences of the library room become in an equal degree more noticeable.

In conclusion, allow me, in the name of the Society, to thank our Standing Committees, the Secretary and Librarian, the Treasurer and the assistants employed in the building, for their continued faithful and valuable services.

William C. Strong, Chairman of the Committee charged with preparing a fit expression of the Society's regard for the late Hon. Marshall P. Wilder, reported the following:

Memorial of Hon. Marshall P. Wilder.

For fifty-six years, lacking but a single year of the entire lifetime of the Society, Marshall Pinckney Wilder has been a constant and an active member. Indeed, we have been so accustomed to expect his benign presence at all our meetings that his loss seems for the present to change the very character of our Society.

Quorum pars magna fui! With special appropriateness might he have adopted these words of the Roman poet, as applied to his connection with this Society. It is, therefore, with no ordinary emotion that we recommend the adoption of the following as an expression of the sentiment of the Society:

In the gift of the long and preëminently useful life of Marshall Pinckney Wilder, the Massachusetts Horticultural Society recognizes the benevolent hand of the Giver of all Good. A specially kind Providence seems to have smiled upon his enthusiastic love of Nature and his efforts to develop the works of the Creator. With gratitude do we acknowledge the wide and lasting influence which Mr. Wilder has exerted in his favorite pursuit of horticul-

ture; an influence of which this vicinity has had the near and special benefit, but which has also extended beyond the limits of our State and country, and is recognized wherever our art is known. We shall cherish the memory of his unflagging zeal in every branch of horticulture, his example in skilful cultivation, his constant attendance, and his wise and kindly words of encouragement. While painfully conscious that these halls can never more welcome his presence, we turn from this sad thought to dwell upon the fact that his was a completed life, that he had filled up the measure of usefulness to the full, and that he was gathered like a shock of corn fully ripe in its season.

Who can doubt that in humble trust he has entered the paradise of God, and that in company with those he loved he is now engaged in higher pursuits, yet it may be still kindred with those that were the joy of his earthly life. Let it be our aim to be animated by his noble example.

To the family of the deceased the Society extends its profound sympathy in their sorrow.

WILLIAM C. STRONG,
CHARLES M. HOVEY,
JAMES F. C. HYDE,
ROBERT MANNING,
EDWARD L. BEARD,
} *Committee.*

In presenting this memorial Mr. Strong added that—

To the active members of this Society Mr. Wilder was so well known that it seems superfluous to speak of the traits of character which so distinguished and endeared him to us. Yet it is well for us to dwell upon his example, that we may get such clear and fixed impressions as shall be helpful to each of us in worthy living.

Mr. Wilder was born to be a leader. At the early age of twenty-one he was chosen captain of a military company, and at twenty-six years of age he was colonel of a regiment.

When first elected to the Senate of this Commonwealth, it was not deemed necessary that he should become familiar with the routine of business, but contrary to all custom he was at once selected as presiding officer. And thus it has been with the numerous societies which he has either formed or with which he has been connected. In all these he has advanced to the front rank. In every enterprise which engaged his attention his enthusiasm was at

once enlisted and his persistent ability and inspiring presence speedily placed him at the head.

Others will dwell upon the traits which gave him success in the various fields of his usefulness. We turn rather to notice his characteristics in his favorite pursuit of horticulture. In this he is best known. Here he did his best service for his fellow men. It was, indeed, a favorite pursuit—a genuine love. While engaged in large commercial business he yet found time for the extensive importation and cultivation of a great variety of hardy and exotic fruits, plants, and agricultural products, being one of the earliest introducers, and always on the alert to obtain and test new kinds. This enthusiasm was lifelong, and was as hearty in the cultivation of pæonies as pears; or in the case of camellias or dahlias or azaleas as of raspberries and strawberries. Undeniably he was stimulated by a desire to exhibit the best; but before and deeper than this was a hearty interest in every form of cultivation of mother Earth. From my earliest acquaintance with Mr. Wilder, more than thirty years since, I recall a reverent appreciation of the wisdom and goodness of the Creator in all his material works. And I think as the years went by a steady and a marked increase of this feeling was to be noticed—a leading from Nature up to Nature's God, so that he gave frequent expression of his gratitude to the Infinite Ruler of the Universe.

After his severe prostration, more than a score of years ago, which compelled his retirement from active commercial enterprise, it was remarkable with what new zest he entered upon horticultural pursuits. He did not consider himself too old to sow seeds of trees, to cross-fertilize flowers that he might obtain seeds for new varieties, to form and lead off new societies which might exert a perpetual influence. His interest in this Society was never more active than in the last days of his life. And while often alluding to the vast changes which had been accomplished in the modes of culture and the improvements in varieties, how hopefully did he look forward to the progress yet to be made! With what youthful vigor did he anticipate the results to be obtained by hybridization!

We shall love to recall the picture of this patriarch as he walked among his plants, watching to obtain some new results and improvements by crossing and varied culture. It seemed as though this occupation was to him the very elixir of life, imparting to him a

perennial youth. How different in its result from a life spent in the absorbing and selfish pursuit of gain or worldly ambition! And yet in other respects Mr. Wilder was an old man, his life was completed — his was a sublime old age, full of good works. The world is better, how much better! for his living in it. Long shall we cherish his memory; long may we be stimulated by his example.

Rev. A. B. Muzzey read the following memorial, prepared by him:

A connection in this Society of forty-two years with Marshall P. Wilder, all filled with the highest respect, and many of them with a friendship based on personal intimacy (treading, as we did, alike through more than one path darkened by some of the deepest shadows of home) demands, I feel, from myself, in these memorial services, some notice of the traits of his remarkable character. His prolonged life was too active, too earnest and influential, to receive only an ordinary brief and superficial record. The son of a farmer, he inherited a taste for cultivating the soil, and was diverted from that pursuit only by a casual incident that led him into a mercantile life. But this never stifled or decreased that early love of nature which made him eventually so distinguished in horticulture. His passion for flowers and fruits impelled him to devote himself more and more, by importing new and rare plants, and especially through hybridization, to the production of the choicest specimens in these departments.

A constant contributor to our exhibitions, he secured numerous premiums, both for flowers and fruits, on to the very last month of his long life. Nor were these testimonials confined to this Society. He received from the United States Agricultural Society a present in silver which he tenderly bequeathed to his daughters, down to the last survivor of them, "to have and to hold, to her, her heirs, executors, administrators, and assigns, absolutely."

A thoroughly practical gardener, he united with this art a steady and deep thoughtfulness which made him a man of science. He had a progressive mind, never satisfied with present achievements. A steady observer of nature, he kept up with the times, ready for new ideas, ready for everything that promised better results in the garden. And so in agriculture; a member of our State Board of Agriculture, he was essentially the founder of the Massachusetts

Agricultural College, and prominent in its support, being at his death one of its Trustees and senior member of its corporation. His broad mind led him also to take an interest in the mechanic arts; and to the last he was a Trustee of the Massachusetts Institute of Technology. A born commander, he naturally and almost by common consent was placed at the head of the associations he joined or into which he was chosen. When elected to the Massachusetts Senate he was at once designated as its president.

Mr. Wilder was no less remarkable as an organizer than in his work as an individual. To him the country owes the inception and establishment of the American Pomological Society. From the beginning on he has been its President; and his annual addresses are full of records of the past and suggestions for the future, which have diffused an interest in the production of the best fruits throughout the length and breadth of our land.

And, if as an organizer, no less as a presiding officer he had rare endowments. With a large intelligence, comprehending each subject that came up for consideration, he united a ready utterance, a happy command of language, a quick recognition of each speaker, and that perfect self-possession essential to the chair. Impartial and courteous to everyone, and by his prompt memory recalling names, dates, and events with marvellous facility, he commanded the attention of all present and caused a helpful and gratifying dispatch of business. The silver testimonial presented to him by our Society, at the close of his eight years' service as President, was a token of esteem as truly deserved as it was prized by the recipient.

And alike on the floor as in the chair, and as a debater, his success was noteworthy. Gifted with a good voice, his distinct enunciation, fluent expression, and accuracy of statement, embodying his clear and logical thought and not deficient imagination — all set forth in a pleasing spirit — made his words often eloquent and always welcome.

Nor did Mr. Wilder come short of equal success as a writer. Whenever he took up his pen, he had something worthy of its use. And his ideas were usually fresh, to the point before him, and often original. And for style, this well-nigh self-taught man, by his nervous, simple, direct, clear mode of expression, was a model to many who boast of what is termed a liberal education. The twenty annual addresses written by him as President of the New

England Historic Genealogical Society, for their variety of topic, their comprehensive pictures of the passing years and events, and their just historic and biographical delineations, deserve high commendation.

Besides his distinctions in our own country we should recall the honors he received and his appreciation abroad. He was made honorary member of the Royal Historical Society, and corresponding member of the Royal Horticultural Society, in London; and a fellow of the Reale Academia Araldica Italiana, of Pisa.

If, as we are proud to say, the Massachusetts Horticultural Society is known and honored in Europe, to Mr. Wilder, not forgetting the claims of many others in our association, this gratifying circumstance must be largely ascribed. The tidings of his death will be a grief to the foreign friends of this institution.

I cannot close without adverting to the high position of Mr. Wilder in private and social life. It was a privilege to meet him in the varied clubs and other associations which he favored with his presence. There we saw not only the breadth of his character, his sober and solid worth, but his genial temper. No one knew him thoroughly as a man who had not sat down with him at the table in the day of his health and strength; when he would unbend, lay aside each "carking care," and give way to that wit and humor which lay imbedded in his rich, affectionate, and fertile spirit. To be a friend of Mr. Wilder was indeed an enviable lot. Said one to me a few days since: "We all rejoiced to see him at the dinners of our Board of Trade."

Who, that ever received from him in these latter days one of his tender notes signed "your old friend," can restrain a tear as he thinks of those tremulous lines and reflects that we shall see his face and enjoy the warm pressure of his hand no more? This manliest of men, so robust in his prime, had the heart of a child. Let us lay our blossom on that large and sincere gathering of the flowers he so loved, and let our sorrow be turned into joy when we can do our part, however small, to swell the tribute so widely and so gladly paid to our departed friend and brother.

Charles M. Hovey said that as one of the Committee to prepare a memorial of Mr. Wilder, he took great comfort in seconding that prepared by the Chairman. The Society had lost a friend, but he had lost one of his oldest friends. He recalled the day when he became acquainted with him and associated with

other members of the Society. As a young man he felt something of awe towards them, but he singled out Mr. Wilder and formed an intimate friendship with him. It soon became a custom with him in winter frequently to ride out to Dorchester with Mr. Wilder when he went home at night, and in the evening they would go out to the greenhouse, each with a candle in his hand, and examine the camellias, with their glistening foliage, and on returning to the house they would look over the books on horticulture which Mr. Wilder then possessed. At the close of the evening Mr. Wilder would send him down to the Norfolk House in his carriage, to take the omnibus for Boston on his way home to Cambridge. When, in 1833, the speaker projected the "Magazine of Horticulture," his first thought was of Mr. Wilder, and he asked him to write a paper on the camellia. This he did, extending it through several numbers of the magazine, and it was the first thing he ever wrote on horticulture. The camellia was then hardly known here except to Mr. Wilder and the speaker. "You can judge from this," said Mr. Hovey, "how much of a friend I have lost."

Their association on the Flower, Library, and other Committees, was early and long continued, but circumstances changed, and with growing families to bring up their visits to each other necessarily became less frequent.

Mr. Wilder was one of those men whose magnetism was such that you could not but do what he wanted you to do. Thus the speaker accompanied him to the fair of the United States Agricultural Society at Philadelphia, and made an exhibition of fruit there. This enthusiasm was the key-note of his success. Mr. Hovey closed by expressing his trust that the fund which Mr. Wilder had left to the Society would be the means of perpetuating his memory long after those who knew him personally should have passed away.

Benjamin G. Smith said that Mr. Wilder was his beau ideal of a a man. No name of this century is written more imperishably in the affection and esteem of Boston and Massachusetts than that of Marshall P. Wilder.

John C. Hovey spoke of the long letter which he received from Mr. Wilder, after the death of his father, full of the kindest expressions of sympathy. Though in one sense he was an old man, in others he was still young. He kept up his interest in the cultivation of flowers to the last, as was evinced by the inquiries he made of the speaker in regard to its details.

John G. Barker said that whoever enjoyed Mr. Wilder's friendship had a whole friend. For the last few months, since he had been Superintendent of Forest Hills Cemetery, their relations had been of the tenderest nature. He frequently visited the cemetery, and gave him most interesting reminiscences of those buried there, and said it would not be long before the speaker would have to care for him all the time; and a short time ago, as the evening shades were falling, he was laid away, leaving only pleasant remembrances.

O. B. Hadwen esteemed it a privilege to add a word to what had been said. In one sense Mr. Wilder was the father of this Society; his handwriting is inscribed on these walls. But he was the leader in establishing other societies, and as a member of the State Board of Agriculture, a trustee of the Agricultural College, and in other organizations, his record is unequalled in this generation, and will go down to generations to come.

Robert Manning said that it would be expected of one so long and intimately associated with Mr. Wilder as he had been, to say a few words. He recalled the time when he made the acquaintance of Mr. Wilder. When a mere boy he was sent with his brother, during the last illness of his father, with fruit for one of the exhibitions of this Society, of which Mr. Wilder was then President, and they were introduced to him. But Mr. Wilder had been a friend of his father's and his name had been a household word since his earliest recollection. With the late Hon. Benjamin V. French and Hon. Samuel Walker he seemed to form a trinity of horticulturists who, more than any other men, represented the Society in his mind before he became actively associated with them; and he was glad that one of them had been spared to us so long. He had hoped that Mr. Wilder might live to the meeting of his favorite society, the American Pomological Society, in this city in September next, but it had been differently and, we could not doubt, more wisely ordered. Mr. Wilder himself felt deeply the uncertainty of his stay until that time, for in the address which he prepared for the meeting at Grand Rapids, Mich., in September, 1885, after expressing his regret that he was unable to be there personally, he said in words that now seem prophetic, "I console myself with the hope that you will accept the invitation of the Massachusetts Horticultural Society and come to Boston in 1887, when I may be permitted to lay off the robes of office with which

you have so long honored me, unless ere that time I shall have been clothed with the robes of immortality, and gone up to gather celestial fruits, which ripen not in earthly climes."

One of Mr. Wilder's most prominent characteristics was the perpetual youth which, in spite of the infirmities of age, he carried with him, and which led Governor Long, in his speech at the meeting of the American Pomological Society in this city in 1881, to speak of him as at once the oldest and the youngest man in the State. This had been attributed to his love for rural pursuits; but the speaker thought it due rather to his kind and loving heart, continually overflowing with regard to everyone, so that they who had known him but a short time felt that in his death they had lost a dear friend. This thought, the speaker said, had been better expressed in Whittier's lines, with which he closed:

"To homely joys and loves and friendships
  Thy genial nature fondly clung;
And so the shadow on the dial
  Ran back and left thee always young.

* * * * * *

Thy greeting smile was pledge and prelude
  Of generous deeds and kindly words;
In thy large heart were fair guest-chambers
  Open to sunrise and the birds.

* * * * * *

O friend! if thought and sense avail not
  To know thee henceforth as thou art,
That all is well with thee forever
  I trust the instincts of my heart.

Thine be the quiet habitations,
  Thine the green pastures, blossom-sown,
And smiles of saintly recognition
  As sweet and tender as thy own.

Thou com'st not from the hush and shadow
  To meet us; but to thee we come.
With thee we never can be strangers,
  And where thou art must still be home!"

The President, in putting the question on the adoption of the memorial, requested that it be done by a rising vote, in loving and respectful assent, which was unanimously complied with.

O. B. Hadwen, Chairman of the Committee on Publication and Discussion, read the annual report of that Committee, which was accepted. Mr. Hadwen further gave notice that the programme of meetings for the discussion of horticultural subjects was ready.

The following appropriations, previously recommended by the Executive Committee, came up for final action and were unanimously voted, viz.:—

For Prizes and Gratuities, ...	$6,000
Additional for Fruits, on account of the meeting of the American Pomological Society, . .	500
Additional for the Flower Committee, . .	300
Additional for the Flower Committee, . .	154
	6,954
For the Library Committee, for the purchase of magazines and newspapers, binding of books, and incidental expenses of the Committee, .	300
For the same Committee, to continue the Card Catalogue of Plates, ...	100
For the Committee on Publication and Discussion, ...	250
For the Committee of Arrangements — this sum to cover all extraordinary expenses of said Committee, ...	300
For the same Committee, to cover the deficiency in the appropriations for the years 1884 and 1885, ...	94.80

The President, as Chairman of the Executive Committee, reported that that Committee had appointed George W. Fowle Treasurer of the Society and Superintendent of the Building, and Robert Manning Secretary and Librarian for the year 1887.

On motion of E. H. Hitchings it was voted to amend the vote passed on the 11th of December, 1886, concerning the award of the Society's Silver Medal to George E. Davenport, so as to provide for the award of the Appleton Gold Medal.

It was voted that in compliance with the laws of the Commonwealth relating to agricultural societies a prize of $10 be offered

for the best Plantation of Trees for Ship Timber for the year 1887.

On motion of William H. Spooner, it was voted that the Executive Committee consider the subject of employing experts to award the prizes at some of the larger shows of the Society.

On motion of Edward L. Beard, it was voted that the Executive Committee report the most feasible method of limiting the number of annual members of the Society.

Francis H. Appleton moved that a committee of five be appointed to nominate a candidate to fill the vacancy in the Executive Committee caused by the death of Hon. Marshall P. Wilder. The motion was carried and the Chair appointed as that Committee Mr. Appleton, Warren Heustis, Benjamin G. Smith, William H. Hunt, and E. H. Hitchings.

Mrs. P. D. Richards, of West Medford,

having been recommended by the Executive Committee as a member of the Society, was on ballot duly elected.

Adjourned to Saturday, January 8.

Biographical Sketch of Hon. Marshall P. Wilder.

The Committee on Publication have thought it best to insert here a short biographical sketch of Mr. Wilder, which has accordingly been prepared by the Secretary of the Society. Several such sketches were published during Mr. Wilder's life, some of which, especially that in the "Biographical Encyclopedia of Massachusetts in the Nineteenth Century," have been used in the preparation of the following memoir. The address of his pastor at the funeral has also afforded assistance. The portrait of Mr. Wilder prefixed to this volume was contributed by his family. It was engraved in 1872.

Marshall Pinckney Wilder was born in Rindge, New Hampshire, on the 22d of September, 1798. His Christian names were given in remembrance of Chief Justice John Marshall and General Charles Cotesworth Pinckney, both prominent Federalists at the time of his birth. His father, Samuel Locke Wilder, was a nephew of Samuel Locke, D.D., President of Harvard College; he held several important offices in the town of Rindge, and was also a

Representative in the Legislature of New Hampshire for thirteen years. His mother (Anna Sherwin) was the daughter of Jonathan Sherwin of Rindge, grandfather of Thomas Sherwin, Principal of the Boston High School for more than thirty years. The father was of Puritan origin and Puritan principles, and was a member of the Congregational Church in Rindge. The mother was endeared to her family and friends by deep piety and great moral worth. She was a warm admirer of the beauties of nature and doubtless transmitted religious and æsthetic instincts to her eldest son.

Young Wilder was sent to school at the age of four years, and at twelve he entered New Ipswich Academy. His father desired to give him a thorough collegiate education, and thus to prepare him for professional life. But at sixteen, after he had studied awhile with the village pastor, having the choice between agricultural, mercantile, and professional life, he chose to be a farmer. His father carried on a farm in connection with a country store, and the business of the latter increasing Marshall was taken into the store, beginning at the lowest round to ascend the mercantile ladder; but he soon acquired such habits of industry and such mastery of detail that he was admitted to partnership as soon as he had attained his majority.

The country town did not afford sufficient scope for his energies, and in 1825 he sought and found a larger field in Boston. He conducted a wholesale business in West India goods in Union Street, under the firm name of Wilder & Payson; next in the firm of Wilder & Smith in North Market Street, and afterward in his own name at No. 3 Central Wharf.

In 1837 he became a partner in the dry goods commission house of Parker, Blanchard, & Wilder, in Water Street; the style being afterwards changed to Parker, Wilder, & Parker, and the location to Pearl Street. Still later it was changed to Parker, Wilder, & Co., in Winthrop Square, where the firm was burned out in the great fire of November 9, 1872. They soon however resumed business, and through all the checkered fortunes of mercantile life, and in all the commercial crises of the last half century, Mr. Wilder never failed to meet his pecuniary obligations. At the time when he left the grocery business that of selling domestic dry goods on commission was a new one, the senior partner in the new firm, Mr. Isaac Parker, having sold the first bale of these

goods ever sold on commission in Boston ; and Mr. Wilder lived to be the oldest merchant in the city in that line of business. His business success made possible all his wider labors for the good of the community.

At the time of his removal to Boston Mr. Wilder was a husband and a father, having in 1820 married Tryphosa, daughter of Dr. Stephen Jewett, of Rindge, a lady of great personal attractions. She died, July 31, 1831, while on a visit to her native town, leaving four children. On the 29th of August, 1833, he was united in marriage to Abigail, daughter of Captain David Baker, of Franklin, Mass., a lady of education, accomplishments, and piety. She died of consumption at Aiken, S. C., April 4, 1854, leaving five children. His third marriage, on the 18th of September, 1855, was to Julia, the sister of his second wife, a lady admirably qualified to console him and diffuse cheerfulness through his dwelling, by whom he had two sons. Of his whole family of fourteen children only five survive him. No man ever possessed stronger affections, and notwithstanding his many bereavements no man has been more blessed in domestic life or has enjoyed a brighter and happier home.

Mr. Wilder's horticultural tastes were no doubt largely inherited from his mother. In reply to an inquiry made of him during the last year of his life, he said that his earliest recollections of any interest in fruit culture were when he assisted his mother in the care of the garden in New Hampshire. There were then apple orchards in the town, but he had seen only one pear tree, no other than a wild grape vine, only the common red currant, the wild strawberry and red raspberry, a purple plum, some small red cherries, and peaches raised from stones brought from Massachusetts. The first fruit garden he ever saw was about seventy-five years ago — that of Gardiner Greene in what is now Pemberton Square, where the new Court House is now erecting. Here he imbibed inspirations which followed him through life.

Mr. Wilder was elected a member of the Massachusetts Horticultural Society on the 26th of June, 1830. At that time Gen. H. A. S. Dearborn was President of the Society, and Mr. Wilder soon became intimately associated with him, the Hon. John Lowell, and other leading members, and as long as he lived was one of the strongest and most judicious supporters of the Society. The sudden death of his first wife led him to seek

the retirement of the country, where he could gratify his taste for rural life. In June, 1832, he purchased the residence of Governor Increase Sumner, known as "Hawthorn Grove," on the corner of Washington and Columbia streets, in Dorchester, and there, after having given a suitable time to business in the middle of the day, he devoted all his leisure hours to the various branches of horticulture.

His zeal and energy were soon manifested at the exhibitions of this Society. His first contribution was a dish of Madeleine pears, on the 3d of August, 1833. Probably these, as well as Windsor, Double Eyed, and Catherine pears, and Green Gage and Prince's Imperial plums, a few weeks later, were from trees planted by Governor Sumner; but his contributions also included new flowers, which were doubtless of his own planting. On the 10th of August he contributed two new French Roses; and on the 12th of October Dahlias, Asters, Chrysanthemums, Papavers, and Marigolds — all in variety, besides a long list of other flowers. March 1, 1834, he made his first exhibition of Camellias, comprising six varieties; and a week later had eight varieties, besides other flowers. July 24 he showed new dahlias, carnations, and *Eschscholtzia Californica flore pleno;* the last "a new and very beautiful production, which very justly excited the admiration of all visitors present on account of its being produced double by Col. Wilder." August 9 he had a variety of flowers including *Lobelia cardinalis*, *L. splendens*, and *L. fulgens*. August 30 he had eleven new Dahlias besides other flowers, and on the 13th of September more new dahlias. At the Annual Exhibition in Faneuil Hall (the previous annual shows had been confined to the dining hall where the anniversary was celebrated) he was one of the largest contributors, especially of dahlias and greenhouse plants. Such were the beginnings of his contributions to the object lessons in horticulture which this Society has so long set before the people, and these contributions went on increasing in quantity and value, extending over a period of fifty-four years, and ceasing only with his life, the last having been at the Chrysanthemum Show in 1886 — little more than a month before his departure from among us.

On the 24th of October, 1835, some special awards were made by the Horticultural Society to several gentlemen who had been preëminent in forwarding the objects of the Society. These testimonials consisted of pieces of plate of the value of fifty dollars

each, suitably inscribed, one of which was given to Mr. Wilder for "beautiful exhibitions of Camellias, Roses, and Dahlias, embracing many new varieties imported by him from Europe;" showing that he was already recognized as a leader in horticulture.

July 2, 1836, Mr. Wilder exhibited fine specimens of *Gladiolus floribundus*, and June 24, 1837, a plant of *Oncidium flexuosum* which had at one time ninety-seven fully expanded flowers. This was the first orchid reported at any exhibition. At a Geranium Show on the 28th of April, 1838, the best display was made by him. At the Annual Exhibition that year he had a magnificent *Stanhopea quadricornis*. At this time the taste for the Camellia was universal and the collections were numerous, comprising every choice variety of native or foreign origin. That of Mr. Wilder stood first, there having been added to it within a year twenty-one of the newest varieties from China, England, Germany, Belgium, and Italy. *Rhododendron arboreum* in his collection exhibited nearly one hundred flower buds. Among the rare and curious tropical orchids which had been introduced, a dozen or more species might be found at Mr. Wilder's. Of these *Stanhopea insignis*, a rare and curious species, produced a superb inflorescence exciting universal admiration.

The Dahlia was at this time the favorite autumnal flower, and very extensive exhibitions were held, to which Mr. Wilder was one of the largest contributors. His displays in the autumn of 1839 at the Annual Exhibition of this Society, and at a Special Dahlia Exhibition in the Conservatory in the Public Garden, were so brilliant that some of the admirers of this gorgeous flower presented him with a silver vase, bearing an appropriate inscription and the motto "*Consequitur quodcunque petit*," to testify the pleasure they had received, in common with thousands of their fellow-citizens for several years, from these displays. A Special Grand Dahlia Show was held on the 23d of September, 1840, continuing four days. Nearly three thousand superb blooms were displayed on this occasion; besides asters and other annuals. A Premier Prize for the best six dissimilar blooms and a prize for the best specimen bloom were both taken by Mr. Wilder. The other prizes were in two divisions; the first open to cultivators of more, and the second to cultivators of less, than two hundred plants. Of course Mr. Wilder was in the first division; the highest prizes were two for the best twenty-four dissimilar blooms, of which he took the first.

On the 19th of June, 1841, Mr. Wilder exhibited *Clematis azurea grandiflora*, a fine new kind. On the 7th of August, the High Bush Blackberry (now known as the Dorchester) was exhibited by Eliphalet Thayer of the town from which it took its name. This was the first of the improved varieties of blackberry. That afternoon Mr. Wilder went with his friend, Cheever Newhall of Dorchester, to see the blackberries growing in Mr. Thayer's garden, and he was afterwards instrumental in disseminating it. The next week he exhibited the first of the Japan Lilies, now so extensively cultivated. It was the *Lilium lancifolium album;* the plant having two flower spikes on which were eight expanded flowers and ten buds, and being in the estimation of the Committee "a superb plant." It was not discovered until about ten years later that these lilies are hardy in this climate.

At that time in all parts of Europe and America new varieties of fruits, plants, and trees were continually brought into existence by the hand of the skilful gardener. The vanity or the ignorance of the originators of many of these new varieties led them to overrate their value. Differences of soil and climate also render such productions, which may be of the greatest value in one country, of less in another. It is of the highest importance that these accumulations should be tested in regard to their intrinsic value and their adaptation to our soil. This work Mr. Wilder set himself to perform, so far as he might, for his own gratification and for the benefit of the community. Especially had the pomologists of Belgium and other European countries been busy in producing from seed new varieties of the pear, and the desire on the part of several cultivators near Boston to test these new varieties was so great that it was described by A. J. Downing as a "pear mania." Here again Mr. Wilder's zeal and energy were exerted until the pear, in his orchard of twenty-five hundred trees and eight hundred varieties, became as noted as the camellia in his conservatory. At the exhibition of the American Pomological Society in this city in 1873, he placed on the tables 404 varieties of pears. Of this fruit alone he tested over 1200 varieties, while grapes, cherries, plums and small fruits were tested on such smaller scale as was appropriate. Among the magnificent prizes which were the results of these untiring labors was the Anjou pear, so widely renowned at the present time, which was first shown by Mr. Wilder, at the Annual Exhibition in 1844. He continued to intro-

duce new pears after others had ceased, exhibiting the Souvenir du Congrès and the Assomption in 1873. The *Weigela rosea* was exhibited by his gardener in full bloom on the 19th of April, 1851, and was described as an "exquisite hardy shrub." At the Annual Exhibition in 1854, Mr. Wilder showed a finely grown specimen of *Cissus discolor*, interesting not only for its rare beauty but as the harbinger of the infinite variety of ornamental leaved plants now so generally cultivated and admired. In 1874 he exhibited the hardy and valuable *Azalea mollis*. The last year of his life he took prizes at the Annual Exhibition of this Society for Pears and native Grapes, and for Chrysanthemums at the Chrysanthemum Show, and at the exhibition of the Bay State Agricultural Society he placed on the tables a hundred varieties of Pears and twenty of native Grapes.

We might go on with multiplied instances of fruits and flowers introduced to our gardens by Mr. Wilder's zeal, but those mentioned must serve as specimens. He did not, however, content himself with introducing the productions of others, but diligently endeavored to produce improved fruits and flowers in his own houses and grounds. His first attempt was with his favorite flower, the Camellia, and resulted in producing, among others, those two fine varieties, Camellia Wilderi and C. Mrs. Abby Wilder. These were first exhibited before the Society on the 15th of February, 1846. It may be of interest to mention that the original plant of C. Wilderi and all the stock, except a single graft, were destroyed by a fire in Mr. Wilder's greenhouse on the 16th of April, 1841. The graft was remote from the hottest part of the house and further protected by a sort of bell-glass, so that the variety was fortunately saved. Over five hundred seedling camellias in varioue stages of growth were destroyed by this fire. Camellia Mrs. Abby Wilder has produced curious sports, which have been made into permanent varieties by "fixing the graft." One of these, Camellia Grace Sherwin Wilder, is known in England as the Queen of Beauty.

As soon as he had introduced the Japan Lilies he commenced hybridizing them, and in 1846 exhibited seedlings from them. May 12, 1848, he exhibited a fine seedling rhododendron, a hybrid between *R. campanulatum* and *R. Catawbiense*. The seedling strawberry which bears his name — a cross between the Hovey and La Constante — is well known as of the finest quality. Of

the many seedling pears raised by him perhaps the best is that named for his son, Eddie Wilder. At the meeting of the Society on the 10th of March, 1883, he exhibited two Chinese Azaleas in flower at two years from seed. Many who knew him in recent years will remember the camel's hair pencil which he always carried in his pocket to transfer the pollen in cross-fertilizing. As in other departments of horticulture, his labors in this branch ceased only with his life; at the Strawberry Show in 1886 he presented two seedling varieties, the Dorchester and Omega, which gave promise of much value as late varieties. And now that he has gone we remember his earnest exhortations, particularly in his addresses before the American Pomological Society, to produce improved varieties of fruit from seed, and especially to cross well chosen varieties with that purpose. Among his many horticultural experiments those made to determine the best method of ripening and preserving fruit should not be omitted. For this purpose he built several fruit houses, on different principles. Besides his original researches, he availed himself of the wisdom of others and collected a valuable library of horticultural and agricultural books, and also books on history and other subjects in which he was interested.

Mr. Wilder's services to the Horticultural Society extended beyond the support of its exhibitions by contributing to them the newest and choicest products of his garden and greenhouses. His executive ability and business tact were freely given to aid in the administration of its affairs. A most important service was rendered to it by him when, on the 6th of December, 1834, he made a motion "That a committee be appointed to consider the expediency of disposing of the interest of the Society in the Garden and Cemetery of Mount Auburn to the proprietors of lots in the Cemetery, and report the conditions on which a conveyance shall be made if the committee deem the measure advisable;" and as a member of the committee appointed in pursuance of this vote succeeded, by his conciliatory efforts, after several exciting meetings had been held, in effecting an arrangement which has proved of the greatest benefit to the Society; giving it a financial standing above that of any other horticultural society in the world. He felt that the position occupied by him was fraught with great difficulties, for though then a comparatively young man he was placed in opposition to Judge Story, the Chairman of the Com-

mittee; whose sympathies were wholly with the proprietors of lots. When the report of the Committee was adopted by the Society Mr. Wilder was Chairman of the Committee appointed to carry it into effect; and when in 1858 Dr. Bigelow, then President of the Proprietors of Mount Auburn, desired a conference with the Horticultural Society while some of those who had been acquainted with the subject from the beginning were still living, to adjust amicably certain differences that had gradually arisen, Mr. Wilder was one of the Committee on the part of the Society. The marble bust of Mr. Wilder by Henry Dexter, presented to the Society by Charles O. Whitmore, March 31, 1863, was intended by the donor to commemorate Mr. Wilder's services to the Society, and particularly those in connection with Mount Auburn.

Mr. Wilder was Vice-President of the Society in 1839 and 1840; and President from 1841 to 1848, holding that office longer than any other who has filled it. Great energy, unwearied perseverance, and much skill and tact are necessary in the executive officers of such a society to maintain its influence, meet its large expenses, and justify the public expectation in regard to it. All these qualities were singularly united in him. Soon after becoming President he commenced the measures which resulted in the erection of Horticultural Hall on School street, believed to be the first building ever erected by a horticultural society for its own use. The corner stone was laid by Mr. Wilder, who delivered an appropriate address, on the 14th of September, 1844; and the building was dedicated on the 15th of May, 1845. He was also a member of the Building Committee of the present Horticultural Hall.

It was during Mr. Wilder's presidency, in 1842, 1845, and 1848 that the Triennial Festivals of the Society were held. No more brilliant *fêtes* than these had ever been held in Boston, and those who knew Mr. Wilder in his later years will remember how he loved to recall that in 1845 the festival (in Faneuil Hall) was attended by Hon. Edward Everett, who had that morning arrived in Boston after a five years' residence as minister of the United States at the court of St. James; Hon. Caleb Cushing, who had just returned from his embassy to China; and many other distinguished guests, including Hon. Daniel Webster, who asked permission of the President to introduce to the assembly the venerable widow of Alexander Hamilton, the daughter of Gen.

Philip Schuyler, who sat on the right hand of the President. An engraved representation of the festival in 1848 (also at Faneuil Hall) was published in the "Horticulturist" for November of that year, and copied into the "Flore des Serres."

It was also during Mr. Wilder's presidency that the imperial octavo TRANSACTIONS of the Society, with colored plates of fruits and flowers by the best artists, were published, much in the style of the "Transactions of the London Horticultural Society," from which the idea was doubtless taken. Three numbers were published, making one volume.

On the 28th of July, 1848, after a correspondence with other societies in regard to the expediency of holding a national convention of fruit growers, Mr. Wilder, as Chairman of a Committee of the Massachusetts Horticultural Society, in connection with similar committees of the Pennsylvania, New Jersey, and New Haven Horticultural Societies and the Board of Agriculture of the American Institute of the City of New York, headed a call for such a convention, which accordingly met on the 10th of October, in New York. This measure proved to be of an importance not anticipated at that time; for this American Congress of Fruit Growers, as it was styled, consolidated in 1849 with the North American Pomological Convention which held its first meeting at Buffalo, N. Y., September 1, 1848, (the united societies being known as the American Pomological Congress) has effected more for the advancement of pomology than any other association in the world; and its publications have become a standard authority on the subject. On the organization of the American Congress of Fruit Growers Mr. Wilder was chosen President, and with the exception of one year, when owing to a death in his family he was unable to be present at the meeting, held the office of President of the American Pomological Society (the name adopted in 1852) until his death. This was perhaps the best loved by him of all the many associations with which he was connected. The addresses which the By-Laws of the Society require the President to deliver at the biennial sessions were punctually prepared by him and form a series of great interest.

On Mr. Wilder's retirement from the Presidency of the Horticultural Society at the close of the year 1848 he was presented with a silver pitcher and salver of the value of one hundred and fifty dollars, as a testimonial of the appreciation by the Society of his services

as President. But his interest in the management of the Society did not cease with that event. By virtue of the office of President he had been Chairman of the Executive Committee from 1841 to 1848, and he continued to be a member, either as an Ex-President or by election, until his death, and no one was more constant and punctual in attending its meetings than he. He was a member of the Committee on Flowers in 1837 and 1838; a member of the Committee on the Library in 1838, 1839, and 1840, and Chairman in 1842; Chairman of the Committee on the Synonymes of Fruits from 1844 to 1865; Chairman of the Finance Committee from 1849 to 1858, and with the exception of one year a member from that time until 1866. He was also frequently appointed on important special committees. By his will he bequeathed to the Society, as a fund to perpetuate his memory, the sum of one thousand dollars; the income of which is to be awarded in prizes for the improvement of the Pear and the Grape.

Mr. Wilder's interest in agriculture and labors to promote its improvement were hardly less than those in horticulture. The first organized effort in which he joined in this behalf was on the first Saturday in April, 1840, when several gentlemen who felt that nothing is so conducive to right thinking as good eating and drinking met at the Exchange Coffee House to form a club to dine together monthly for conversation and the interchange of opinions relating mainly to agriculture. This association was named the Massachusetts Agricultural Club, and its meetings have been held regularly until the present time. The first President was Cheever Newhall, who continued in that position until his death in 1878, when he was succeeded by Mr. Wilder, whose incumbency also was terminated only with his life. It was around this social board that many of the projects for the advancement of agriculture in which Mr. Wilder took a leading part were discussed and brought into shape. The first of these was the Norfolk Agricultural Society, formed in February, 1849, when he was chosen President. In his first address before this Society he urged the importance of agricultural education — the first general effort for the promotion of this interest in our country. Governor Briggs, Lieutenant Governor Reed, Daniel Webster, Edward Everett, Robert C. Winthrop, Ex-Governor Lincoln of Massachusetts, Ex-Governor Hill of New Hampshire, Charles Francis Adams, Josiah Quincy, Sr., Josiah Quincy, Jr., Gen. H. A. S.

Dearborn, Horace Mann, and many others of national reputation were among his hearers. This effort ultimately bore fruit in the Massachusetts Agricultural College. He was President of this Society for twenty years and on his retirement was constituted Honorary President in acknowledgment of his services. In February, 1886, Henry O. Hildreth, for many years Secretary of the Norfolk Agricultural Society, presented a complete set of the "Transactions" of that Society to the library of the Massachusetts Horticultural Society, in memory of Mr. Wilder's twenty years' presidency.

The next of Mr. Wilder's plans for the promotion of agricul-riculture was the establishment of the Massachusetts Board of Agriculture. A large meeting of delegates was held in response to an invitation from him as President of the Norfolk Agricultural Society and from other agricultural societies in the State; the Massachusetts Central Board of Agriculture was organized; he was elected President, and retained that office until the Board of Agriculture became a department of the State government. Up to the time of his death he was the senior member of the Board.

In 1852, under the auspices of the Massachusetts Board of Agriculture, he prepared a circular calling a national convention of agriculturists at Washington. A meeting was held in that city on the 24th of June, 1852, in which twenty-three States were represented by one hundred and fifty delegates. The United States Agricultural Society was organized, and Mr. Wilder was chosen President. He held this office for six years, and on his resignation a silver tea service of the value of two hundred and fifty dollars was presented to him. At the next annual meeting the large gold medal of honor, valued at one hundred and fifty dollars, and bearing the inscription, "Awarded to the Hon. Marshall P. Wilder, Founder, First President, and Constant Patron," was unanimously conferred upon him. This medal he bequeathed to the Massachusetts Horticultural Society. Much was done by the United States Agricultural Society through its meetings, publications, and exhibitions of horses and other live stock, implements, and farm products to improve the agriculture of our country, until the approach of the civil war put an end to its operations.

In 1858, as a result of Mr. Wilder's efforts in behalf of agricultural education, the Massachusetts School of Agriculture was incorporated, and he was elected President. It was intended to

locate the school at Springfield; but as Congress soon afterwards granted land to each State for an agricultural college the necessity for the school was obviated. In 1863 the Massachusetts Agricultural College was incorporated, and he was named as its first trustee. In 1871 he delivered the address on the graduation of the first class from that institution, and at the Commencement in 1878 he had the honor of conferring the degree of Bachelor of Science on twenty young gentlemen who were also its graduates.

Mr. Wilder's labors for the good of the community were not confined to his favorite pursuits of agriculture and horticulture. In 1859 he presided at the first public meeting in relation to the collocation of several scientific institutions on the Back Bay lands, where the splendid edifices of the Boston Society of Natural History and the Massachusetts Institute of Technology now stand. Of the latter institution he was one of the founders, a Vice-President, and Chairman of its Society of Arts.

In January, 1868, he was unanimously elected to the office of President of the New England Historic Genealogical Society, made vacant by the death of Ex-Governor John A. Andrew; which he held until the time of his own death. At each annual meeting he delivered an appropriate address. In his first address he urged the importance of procuring a suitable building for the Society, and in 1870 a Committee, of which he was Chairman, was appointed to carry out this object. Mr. Wilder devoted more than three months to the work of soliciting funds for this purpose, and raised more than forty-four thousand dollars, with which the building No. 18 Somerset street was purchased and adapted to the purposes of the Society. A little later he raised a fund the income of which is devoted to paying the librarian, and a year or two before his death a further sum for enlarging the building, making a total of nearly eighty-four thousand dollars, secured by him for promoting the objects of the Society.

Mr. Wilder was one of the twelve representative men selected to receive the Prince of Wales at the banquet given in his honor on the occasion of his visit to Boston in 1860. He was also one of the United States Commissioners to the Universal Exposition at Paris in 1867, where he was appointed Chairman of the Committee on Horticulture and the Cultivation and Products of the Vine. While in Europe he visited many of the prominent horticulturists in England, France, and Belgium whom he had previ-

ously known by correspondence; also examining the most noted gardens, and inquiring into the state of horticulture. From Europe he hastened home to preside at the meeting of the American Pomological Society at St. Louis, Missouri. Early in 1869, with a few horticultural friends he made a tour in the South in the hope of meeting the members of the Pomological Society in some of the Southern States whom he had not seen since the beginning of the civil war, but also with the view of ascertaining the resources of that part of our country and the state of horticulture there. An account of this tour was published by him in "Tilton's Journal of Horticulture." In 1870 with a larger party he made a journey to California, chiefly to examine the orchards, vineyards, and gardens, as well as the more important native trees and plants of that State. The results of the observations of these tourists were published in the "Rural New Yorker" and in "Tilton's Journal of Horticulture." They were also embodied in a lecture by Mr. Wilder which he delivered before several audiences.

In politics Mr. Wilder took comparatively little interest. Multitudes of other men stood ready to serve the State politically, but few could serve it as he has done in his chosen walks of usefulness. In 1839 he was induced to serve as a representative in the Legislature for the town of Dorchester during a single term. Ten years afterward he was elected a member of Governor Briggs's Council, and in the year following a member and also President of the State Senate, where he was active in promoting the cause of agricultural education. Once he stood on the brink of a public career, that would have robbed us of many a gracious service and would surely have invaded the order and peacefulness of his life. Whatever ambition he may have had for political advancement, in later years he felt that it was better that it had not been gratified, for he had served his fellow men more effectually and enjoyed life more than if it had been.

The military title of Mr. Wilder was due to his natural proclivity to military pursuits — probably a hereditary tendency. The earliest ancestor to whom the family has been traced was Nicholas Wilder, a chieftain in the army of the Earl of Richmond who fought and won the battle of Bosworth in 1485. Mr. Wilder's ancestors rendered meritorious services to their country in the Indian wars, in the Revolution, and in Shays's insurrection. The warm

blood and courageous daring of the old Puritan warriors, exhibited in many sanguinary encounters with dusky and lighter colored foes of the forest and sea-coast, had been transmitted to him. Opportunities for the display of hereditary qualities in actual warfare were wanting, but the pomp of preparation supplied the lack. At an early age he took a keen interest in military affairs, at sixteen was enrolled in the militia of New Hampshire, and at twenty-one was commissioned as Adjutant. He organized and equipped the Rindge Light Infantry, and was chosen its Captain. At twenty-five he was elected Lieutenant Colonel and at twenty-six was commissioned as Colonel of the Twelfth regiment. Soon after his removal to Boston he joined the Ancient and Honorable Artillery Company; and, after having been nominated four times and as frequently declining the honor, in 1857 he accepted the command.

This artillery corps is the only offspring of the Royal Artillery Company of London, founded in 1537 and commanded by the various sovereigns of England. Colonel Wilder entered into an interesting correspondence with Prince Albert, then in command, sending to him a copy of the history of the Boston Company, and receiving in return an elegant copy of Highmore's History of the Royal Artillery Company. At the two hundred and nineteenth anniversary, in 1857, Prince Albert was, on motion of Colonel Wilder, elected a special honorary member, and at the anniversary in 1878 the present Commander of the corps, the Prince of Wales, was, at the instance of Colonel Wilder, made a special honorary member as his father had been, twenty-one years before.

On the 7th of November, 1849, a festival of the Sons of New Hampshire was celebrated at Boston. The Hon. Daniel Webster presided and Mr. Wilder was Vice-President. The association again met on the 29th of October, 1852, to attend the funeral of Mr. Webster. On this occasion the Legislature and other citizens of New Hampshire were received at the Lowell depot and addressed by Mr. Wilder in behalf of the sons of that State resident in Boston. The "Sons" celebrated their second festival November 2, 1853. Mr. Wilder occupied the chair as President and delivered one of his most able and eloquent addresses. They assembled again June 20, 1861, to receive and welcome the New Hampshire regiment of volunteers; and escorted them to Music Hall, where Mr. Wilder addressed them in a patriotic speech appropriate to their departure for the field of battle.

The two hundred and twenty-fifth anniversary of the settlement of Dorchester was celebrated on the 14th of July, 1855. The orator of the day was Edward Everett. The central tablet of the great pavilion bore the inscription "Marshall P. Wilder, President of the Day. Blessed is he that turneth the waste places into a garden and maketh the wilderness to blossom as a rose."

Mr. Wilder was a member of many horticultural and agricultural societies in this and foreign lands. He was elected a corresponding member of the Royal Horticultural Society of London; a corresponding member of the Société Nationale d' Horticulture de France, at Paris; an honorary member of the Société Centrale d' Horticulture du Département de la Seine-Inférieure, at Rouen; a corresponding member of the Society for the Promotion of the Useful Arts and Auxiliary Sciences, at Frankfort on the Main; an honorary member of the Royal Historical Society of Great Britain; and an honorary member of the Royal Academy of Heraldry and Genealogy, at Pisa, Italy. In 1877 he received the degree of Ph. D. from Dartmouth College and in 1884 that of LL. D. from Roanoke College. Mr. Wilder's eightieth birthday was celebrated by a dinner given him at the Parker House, and on his eighty-fifth birthday a larger company met at the same place to testify their respect and love for him. An account of this celebration was published in book form. On his eighty-eighth (and last) birthday a similar gathering was held at "Taft's," at Point Shirley, at the invitation of Benjamin C. Clark, Secretary of the Massachusetts Agricultural Club, an occasion which will long be remembered by all who had the good fortune to be present.

Mr. Wilder received all the Masonic degrees, including the thirty-third, the highest and last honor of the Fraternity.

As a writer and public speaker Mr. Wilder was fluent, forcible, and popular. His published writings consist largely of agricultural, pomological, and historical addresses. On the 2d of March, 1878, he presented to the library of the Massachusetts Horticultural Society a handsomely bound volume of addresses and speeches relating to agriculture and horticulture, which form a most interesting memorial of him. Other similar memorials in the library have been already mentioned in this sketch. One of his most important literary productions was a sketch of "The Horticulture of Boston and Vicinity," prepared for the fourth volume of the "Boston Memorial Series," the materials of which

he collected and arranged when eighty-three years old. It was also published in pamphlet form, and a copy was presented by him to the library of the Horticultural Society.

But we must bring this brief memoir to a close, for if we were to pursue the subject and chronicle all Mr. Wilder's labors for the advancement of agriculture and horticulture, all the manifestations of confidence reposed in him in public and private relations, and all the honors bestowed upon him we should not have a page for other matter.

As might have been foreseen, Mr. Wilder died in the harness. Until within a short time no man enjoyed life more than he or clung to it more strongly, but after the death of his wife in November, 1885, he desired to depart and be with her. On Saturday the 4th of December, 1886, he attended the meeting of the Horticultural Society and afterwards presided at the dinner of the Agricultural Club. He was somewhat fatigued and during the next week a cold causing rheumatism confined him to his bed for a day or two. After this he improved, and on the morning of Wednesday, the 15th, the librarian of the New England Historic Genealogical Society called and talked with him about the annual address which Mr. Wilder was to deliver before that society the next month, and which he had already finished. The next morning he felt still better, rising at his usual hour and taking breakfast with the family. He transacted a little business with his son Edward, signed a letter, and talked cheerfully with the physician when he came. The doctor inquired in regard to his rheumatism and Mr. Wilder replied that it was all gone, then pressed his hand to his heart and in an instant was dead.

> "Thus with no fiery, throbbing pain,
> No cold gradations of decay,
> Death broke at once the vital chain,
> And freed his soul the nearest way."

The funeral was at the Second Congregational Church in Dorchester, on Sunday, the 19th of December, at 2 o'clock. Until within the last two or three years Mr. Wilder had been a regular attendant at this church, and in 1883 he presided at the seventy-fifth anniversary of its organization and delivered an address. For twenty-five years he was Chairman of its Board of Assessors, and for nearly half a century presided over meetings of various

kinds in connection with the parish. The central part of the house was reserved for the funeral party and for the representatives of the numerous organizations with which Mr. Wilder had been connected. Besides the Committee appointed by the Massachusetts Horticultural Society to attend the funeral other members were present, and the New England Historic Genealogical Society, the New England Mutual Life Insurance Company, the Hamilton National Bank, the Home Savings Bank, the Ancient and Honorable Artillery Company, the Massachusetts Institute of Technology, and the Masonic fraternity were represented. Almost every individual in the large assembly had known and loved him as a friend.

A private service was held at his residence, and at the close the casket was borne to the hearse by four men who had been in his employment for many years. At the church the exercises consisted of singing of some of his favorite hymns, reading of the Scriptures, prayer, and an appropriate and appreciative address by Rev. Edward N. Packard, pastor of the church. Besides the points which we have mentioned in this sketch, he spoke of Mr. Wilder's strong religious bent, inherited from a godly ancestry, and of his constant and generous support of the Gospel and of all good works to which the church lent her hand. In his horticultural pursuits he sought Nature and listened and watched for the footsteps of the benevolent Deity, walking still in the garden in the cool of the day.

The interment was in Mr. Wilder's lot at Forest Hills Cemetery, where his last two wives and several of his children had been buried.

The life of Mr. Wilder is a striking instance of what an individual may accomplish by industry, indomitable perseverance, and the concentration of his intellectual powers upon one great object. With him, it was that of raising the standard of terraculture to a higher rank among the great pursuits of a nation. No ordinary tallent, no turn of mere good fortune, could ever have placed him in the high position he attained as a public benefactor. But back of all his mental endowments he had a strong constitution and sound physical health, the foundation of which was doubtless laid while working on the New Hampshire farm. Without these he never could have performed such labors as he did.

Among his qualifications for usefulness his executive tact was

remarkable. As a presiding officer over deliberative bodies he was the right man in the right place. At all times and places but especially in such public positions, his dignified and commanding presence aided essentially in enabling him to effect the objects which he desired to attain. His personal influence has been sufficient to magnetize many a half-dying form into active life. And this strong personal characteristic was especially remarked among his friends. No one approached him in doubt, in despondency, or in embarrassment, and left him without a higher hope, a stronger courage, and a manlier faith in himself. It is impossible that any man should perform, single handed, the various labors we have recounted, but Mr. Wilder's magnetic personal influence was such that he drew to his aid men who were surprised and pleased at the quantity and excellence of the work they came to perform under his leadership, and which without him would have remained undone. And such coadjutors were always rewarded with his hearty appreciation of their services. That he himself loved the praise of men his friends all know, for he admitted it with a freedom which disarmed all criticism, but while desiring the approbation of his fellow men he sought it only by seeking to deserve it. There are benefactors of their race whose usefulness is not discovered until they are gathered to their fathers. More fortunate than these, Mr. Wilder lived to be appreciated. He was surrounded with prosperity; his path was one of peace; sweet odors were on every side. It was a pleasant sight to behold this patriarch at the rooms of the Horticultural Society on Saturdays, receiving the tributes of affection and respect of his friends and returning all their love, and it is pleasant now to recall it.

His instincts were conservative. At his eightieth birthday festival his pastor, Rev. James H. Means, D.D., testified that he was always a peacemaker, and we trust that he has received the blessing promised to such. A striking trait of his character was prominently exhibited in always discovering something to admire, to cherish, and to encourage in everybody and everything. He did with his might what his hand found to do, and inherited to the full the family trait of not leaving unfinished what he had begun. While cultivating his grounds and introducing new seeds, trees, and plants, he was doing all he could to instil into the public mind a taste and love for rural labors, and to elevate the rank and position of those engaged in the honorable employments of the farm

and garden. He spared no expense, he rested from no labors, in his desire to effect this object. He not only by his zeal, industry, and ability conferred lasting benefits on his native country, but by his careful researches in hybridization and fruit culture he laid the horticulturists of all nations under obligations to him. Through the institutions which he founded his service to men becomes self-perpetuating, but the world which he made a different one to us is different to us since his departure.

BUSINESS MEETING.

SATURDAY, January 8, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President BENJAMIN G. SMITH in the chair.

The Annual Report of the Committee on Gardens was read by John G. Barker, Chairman, accepted, and referred to the Committee on Publication.

Francis H. Appleton, Chairman of the Committee appointed at the last meeting to nominate a candidate for the vacancy in the Executive Committee caused by the death of Hon. Marshall P. Wilder, reported the name of Edward L. Beard. The report was accepted and Mr. Beard was unanimously elected.

Edward L. Beard moved the appointment of a committee of members of the American Pomological Society, to coöperate with the Committee of Arrangements of this Society in regard to the meeting of the former Society in this city in September next. The subject was postponed until the next meeting.

Adjourned to Saturday, January 15.

MEETING FOR DISCUSSION.

THE PROPAGATION, PLANTING, AND GROUPING OF NATIVE TREES.

By LEVI W. RUSSELL, President of the Franklin Society, Providence, R. I.

It will be my endeavor in this paper to present some of the more important observations, facts, and impressions which my recreations among the native forest trees of New England have

afforded me. It will soon be seen that I do this not as a specialist in any department of arboreal study. Neither can I speak from an extensive practice as a tree grower, for I have been little more than a looker-on in that work. But it will be my purpose to emphasize, and to stir into activity, some of the better thoughts and intentions which must have occurred to you, concerning our notably rich and beautiful sylvan growth. And could I succeed in making more practical the desire which the members of this Society undoubtedly feel to preserve and propagate our friendly trees, with a view to the protection of our lands, and the adornment of our homes and highways, the main object of this hour would be accomplished.

Incidental remarks, only, will be made about trees in forest masses; for notwithstanding the vast importance of this subject, involving as it does the welfare—the very existence indeed—of our country as a habitable region of the globe, its present consideration would encroach too much upon the main purpose of this occasion. But leaving this phase of arboreal study, we would like to inquire about trees as they relate to our homes; as they shield us from the storms, and from the desiccating glare of our summer's sun; as they lend their grateful shade to suburban and country highways; or as they lure us to the leafy by-paths of the woods, and as they give their delightful charm to our landscapes wherever we walk or ride among the picturesque hills of New England. We would like to know how to make more and better use of this goodly source of beauty, of comfort, and emphatically of health, so lavishly provided for us in the native tree growth. Speaking generally, we have hardly begun to appreciate the value to us of the arboreal growth of our land. Said an educated and observant Scotchman to me (he was a successful horticulturist also)—"I am amazed at the indifference of your people to the variety and wonderful beauty of your native trees and shrubs. Your nurserymen and landscape gardeners are trying to grow those of foreign nativity, at a cost of many failures and disappointments, when there are better kinds all about them at home."

That, and more, is true. We have many of the finest representatives of most, if not all, of the different genera of trees and shrubs indigenous to climates like our own that can be found anywhere in the world. There are in the little State of Massachusetts about as many native species of trees fit for timber, shade,

and adornment as are found in all the different countries of Europe taken together. We have been accustomed to regard ancestral England as richer in native tree growth than New England. This impression we gather largely from British and Scottish authors, especially the poets. Much has been written by them about the forest parks of Britain, and numbers of her grand old oaks and sycamores have a written history running back over the centuries, even to the days of which only tradition speaks. From the time of the Druids, whose worship recalls to us the words of Bryant, "The groves were God's first temples," and down to the present day, the British people have loved the woods. With the inheritance of their literature, and to a large extent their traits of character, we have naturally something of their veneration for the forests—something of their regard for individual trees. The destructive improvidence which naturally accompanied the necessary felling of the woods, by the early settlers of New England, to meet the demand for tillage and grazing lands, is now being followed, tardily indeed, but we hope effectually, by intelligent efforts to repair the losses thus caused. The indifference to the beauty, the usefulness, the educating influence of single trees, groups, or hedge-rows, which was engendered in our New England ancestors by their view that all trees were but a hindrance to the purposes of agriculture, is gradually giving place to a recognition of their æsthetic as well as economic value. So we are now ready to inquire what our native arboreal growth affords; and what species are best adapted for special purposes and different localities.

According to George B. Emerson, in his Report on the Trees and Shrubs of Massachusetts, there are at least forty-five species of deciduous trees, indigenous to the state, which generally reach a height of from thirty to a hundred feet. There are also ten conifers, growing to an equal size. All of the latter are evergreens, except the larch.

Of the deciduous trees, four species are maple, three ash, four birch, four hickory, two cherry, two elm, four poplar, nine oak, and there is one of each of the following: — birch, chestnut, butternut, black walnut, linden or basswood, tulip, hornbeam, hop-hornbeam or lever-wood, buttonwood, sassafras, nettle-tree, and hackberry. Besides these trees there are of shrubs, or small trees, one maple, one birch, two cherry, and two oak.

The conifers are composed as follows: one hemlock, two other spruces, two balsam fir, three pine, one juniper, and one larch.

This great variety may be accounted for by reference to the marked differences in the soils, features of surface (including elevation), and exposures of different localities.

From such an abundance, then, the tree planter may take his choice. He can find some tree in the list to produce almost any effect of sylvan growth that he may desire. He can find trees adapted to any locality, from a rocky hill-top to a bog; to any texture of soil, from shifting sands to the stiffest clay. A few of these trees are already approved favorites, among them the Maples.

The Rock or Sugar maple, *Acer saccharinum*, is the best of this genus. It is a handsome tree from the start, stately and well balanced in maturity. Its foliage affords deep and cooling shade in summer, and is gorgeous as the sunset clouds in autumn. It will bear more mutilation and ill usage and still thrive than almost any other tree. As a wayside tree, in exposed localities, it has few if any superiors, it being always erect, even where the wind has the fullest sweep. As a pasture shade for cattle, it is peculiarly well adapted. No better work can be done for the many bare, open grazing lots all over New England than to plant, here and there, for shelter and shade, groups or single trees of this kind. They would not only give great comfort to the grazing stock, but please the eye by their scenic beauty. For windbreaks, these trees, in single or double rows, are well adapted, although the white pine will insure this purpose more effectually and in less time.

As a rule, it is a mistake to transplant these, or in fact any other trees, from the woods; where they grow tall and slender. Even if they are severely topped, it takes them years to adapt themselves to their changed conditions, if indeed they live at all. If naturally grown trees are used for transplanting, they should be taken from hedge-rows or borders, where they have had free development in sunlight and air. Generally speaking, it is much better to take nursery grown trees for transplanting than to depend upon seedlings growing naturally. Nursery trees have better roots, more shapely tops, and if not too thickly massed are more hardened to the weather than those from the woods. And every farmer should have his nursery of forest trees—*and his boys should have the larger share in it.* There is nothing about the old home, not even the well-sweep and the bucket, which more endears it to the boys when grown to manhood than the trees

which they helped to plant. We deplore the exodus of our young men from the New England homesteads to the West and other parts of the country. If we would keep them, we must make them love the land of their birth; and I believe one factor in doing this is to attach them to the soil through the practice of tree planting.

The Red maple, *Acer rubrum*, also known as the Swamp (and improperly as the White) maple, is in my judgment too little esteemed, as a tree for ornament and shade. When this is alternated with the rock maple the two kinds form, together, a far more attractive row for the roadside than either alone. This arrangement breaks up the monotony and stiffness of a row of one kind only; and gives, especially in October, that mingling of gorgeous colors, of mellow tints and shades, so characteristic of the autumn foliage of these trees. A fine grouping of these two species is sometimes seen in nature where a few tall rock maples form the centre of the group, while the red maples, lower in stature, are clustered around. The red maple is richly worth growing near our homes for the brilliant scarlet blossoms, which precede the dainty leaves that, in crimson tints, soon follow. This tree, although occupying with us many tracts of low and swampy ground almost to the exclusion of other trees, thrives well on high lands if started from the seed on similar ground. But an almost certain failure will be the result of setting in dry ground a maple or any other tree taken from a swamp.

The White, Cut-Leaved, or Silver maple, *Acer dasycarpum*, is rare, as a native, in Massachusetts. It grows naturally near streams, which it is frequently found overhanging; but flourishes well upon the streets of our towns. It is a tree of rapid growth and graceful ramification of limbs, and has a foliage attractive in form and cheering in the silvery sheen which it shows in the breezes. It is too tender a tree and too liable to be broken by ice for the colder hill regions of this State. Numerous variations and "sports" from this tree are propagated by nurserymen, and some of them are notably fine for the lawn and for special ornamental purposes.

The Norway maple, *Acer platanoides*, a large spreading tree with deep green shining leaves, and the English Sycamore maple, *A. Pseudo-Platanus*, having much the aspect of our rock maple, are valuable additions to our natives; but lack the beautiful coloring displayed by the latter in autumn.

The Birches deserve more attention than they have received from tree planters. The Black birch, *Betula lenta*, in open ground forms a stately round-headed tree, and its numerous slender, finely divided branches, sometimes drooping, lend gracefulness to its aspect. Upon the borders of a pond, or by a brook, it is a charming tree, its sprays often touching the water.

The Yellow birch, *Betula excelsa*, rarely has the opportunity of developing in the open ground; but left to itself it is a tree which limbs low, sending out a large number of long lithe branches forming a semi-orbicular head of imposing dimensions. I knew of such a tree that came up from a crevice in a ledge of rock, and in time threw out huge surface roots, which grappled the rock with a Titan's hold; until, having fed from soil which they finally reached, it grew to a spread of fifty feet, forming in summer a huge mound of foliage, and in the ice-storms of winter a crown of sparkling, dazzling beauty, which even in my boyhood I looked upon with admiring wonder. The tree was cut down for a cord of wood!

The Paper White or Canoe birch, *Betula papyracea*, reaches its fullest development farther north than Massachusetts. Yet in the cooler hill regions of the State it is a fine tree; and if planted will grow well even much farther south. In the open ground it develops a stately head, broadly oval in outline, with rich, dark green foliage. But its characteristic beauty is seen in the forest or mingled with a thicket of other trees. There it shoots up with a straight, slender, milky white stem, without a limb, until it overtops its companions of other kinds with its thick-leaved head—one of the neatest, most graceful trees of the New England woods. It has been fitly termed "The Lady of the Forest." For tree grouping it is one of the best.

The Red birch, *Betula nigra*, is rare in Massachusetts, yet numbers of them are found upon the river banks for several miles above and below Lowell. This tree when fully developed is conspicuous for its large, dense head; formed by long, slender, somewhat drooping branches; a fringe-like spray often crowding the larger limbs near the trunk. It is also noticeable for its copper-colored bark; the outer layers upon the limbs, and upon trunks not too old, hanging loosely in long, ragged strips. Alone or among others it is a striking tree, and one of the best for growth by quick-flowing streams, serving at once to hold their banks and to add beauty to the scene. The wood is also valuable.

The Little Gray birch, *Betula populifolia*, commonly called White birch, is associated with barrenness, poverty, and neglect. Yet its fastigiate style of branching, its jaunty catkins in early spring, twirling like things alive, and the notable beauty of its foliage in summer should recommend it to our favorable regard. If we had to purchase it as a foreign tree we should, I doubt not, esteem it a fine acquisition for the tree border or the lawn. Certainly it is one of nature's restorers of worn out lands, and a valuable protective "nurse" for other seedlings.

The birches I believe are deserving the attention of tree growers, whether planting in masses for fuel and timber, or for scenic effect. A well arranged group of our native birches would be a delight to any lover of trees; and planted singly, in open grounds, they are all attractive.

I will now speak of the American or White Elm, *Ulmus Americana*, the home tree of New England. This tree combines more of the qualities which we admire in different trees than any other of native or imported origin: qualities which seem incompatible when associated, but which in the elm harmonize without a fault. Massiveness, strength, amplitude, loftiness, defiance of the blasts; yet the most graceful curves, limbs elastic as the Indian bow, pendent spray, light and lithe as the willow — all combine in one tree — a magnificent dome of sylvan shade,

> "Fit shrine for humble worshipper to hold
> Communion with his Maker."

The English elm, *Ulmus campestris*, of which there are some noble specimens upon Boston Common, has some but not all of these qualities. The poet Gray, in his Elegy, speaks of "those *rugged* elms," a term fitly applied, for in the distance the tree has much the aspect of an oak, with but little of the gentle grace of its American cousin.

While the "dome" shape seems to be the normal type of the American elm, it varies greatly from this in certain specimens. Some are far more drooping in habit than others; and their spread as compared with height is so various as to give them, in the distance at least, the effect of different kinds of trees. Their varied outline suggested to Mr. Emerson the following distinctive terms — to which additions might be truthfully made: the "Dome," the "Vase," the "Parasol," and the "Plume." I am

sometimes asked whether the tendency of a young tree, in regard to form, can be discovered early enough to ensure the kind desired for planting; also whether seeds from a particular variety will produce the same shape in its progeny. In regard to the first point, the tendency for the decidedly drooping, or weeping, habit can be recognized in a tree twelve or fourteen feet high, if the tree has had proper space for development. Concerning the second point, we have the testimony of experienced nurserymen that seeds from differently shaped trees cannot be relied upon to produce the same forms. The "Parasol" form is plainly the result of an early growth among other trees finally removed, leaving the elm alone, by which great height is made before the sudden expansion of the limbs at the top. The "Plumose" variety is not common, but of striking effect when seen. Some regard this form as the result of injury or accident occurring when the tree was young, while others think it the effect of location. Certain it is that numbers of this form may be seen in nature in certain low-ground localities; while, again, one might ride for miles among the elms and not meet with one of this habit. The plumose tendency can be discovered before the tree is too large for successful removal.

The "Fringed" elm, which usually takes the "Parasol" shape, is a sample of what nature can do when in a mood for sylvan adornment. I do not care to reason about it but gratefully accept it as one of the most charming objects of our New England landscapes.

In planting elms, two things should be recognized: that they require a great deal of space for full growth, and that they are voracious feeders, the roots extending at least twice as far as the limbs. A century grown elm, overspreading the ample dooryard of one of our old New England homesteads, is a magnificent object; so too avenues of elms, with plenty of room, are a joy to all who view them or walk beneath them. But setting them closely together, or where in a few years heading-in or other mutilation or entire removal will become necessary, from their interference with buildings or with each other, is a mistake often committed. Plant elms, but not too many of them, nor too closely together.

Of the other trees which I shall notice, time will permit but a brief mention.

The Hickories are quite abundant in central and southern New England. There are four species in Massachusetts, all of which

grow within a few miles of Boston. They can best be grown by preserving those which are self planted. They spring up where nuts are dropped by squirrels, among rocks and in out-of-the-way places, where nothing else of value would grow. There they should grow. The Bitternut hickory, *Carya amara*, however, is a fine shade tree. It is a wide spreading, symmetrical, densely foliaged tree. The Pig-nut hickory, *C. porcina*, has a well-balanced cylindrical top, with rich foliage. The Mocker-nut, *C. tomentosa*, is a large irregular tree of not much beauty. The Shag-bark, *C. alba*, is a tree which the painters like for the picturesque effects of its irregular branching. These and most nut-bearing trees are best raised by planting the nuts where the trees are to grow. I need not tell the skilful nurseryman, however, that in the case of the hickories, oaks, etc. when properly treated in the nursery by transplanting twice at least, and pruning tap-roots, a growth of fibrous roots will be secured which will ensure success in a final transplanting.

The Oaks are among the most important trees in New England. As I have remarked, there are at least nine species in Massachusetts which grow to the size of trees; and two are shrubs. The smallest, the Chinquapin oak, *Quercus chinquapin*, grows only to a size sufficient for a whipstick or a cane; while the largest, the White oak, *Q. alba*, in size, strength, and all the sturdy qualities which we find in trees is truly the "Monarch of the Wood." But the destruction of our oaks (especially of the white oak) which is caused in supplying the demand for their timber is greatly to be deplored. It takes centuries for a white oak to attain mature growth; and it will live, a grand triumph of sylvan strength and beauty, for centuries after that. Six or seven miles from Boston, in the town of Belmont, near the Waverly station on the Fitchburg Railroad, is one of the most remarkable groups of white oaks in New England, and, for aught I know, in the country. They number twenty or more, and are scattered over five or six acres of ground. Some of the largest grow from gravel ridges which Professor Agassiz reported as probably the terminal moraine of a local glacier. Their roots, however, feed from the rich alluvial deposits near the ridges; and some of them drink from the waters of Beaver Brook. Professor Agassiz was interested in these trees, and I am told estimated the age of the largest, then lying partly decayed upon the ground, to be eight hundred years.

Others, still standing, are probably nearly as old. By the lowest reasonable estimate they must have been growing when Columbus crossed the Atlantic; and quite well grown when the Pilgrims landed. Most of these trees are still vigorous, although some of the largest show signs of decay. A few such venerable oaks are found here and there in central and southern New England; but year by year they are becoming rarer.

At this point let me ask if it is not a legitimate and praiseworthy object for this Society to labor for that education concerning trees, among the people, which shall lead to a recognition of their worth beyond their mere money value as so much wood or timber?

Of the other native oaks of this State, the Yellow-barked or Black, *Quercus tinctoria*, the Red, *Q. rubra*, and the Scarlet, *Q. coccinea*, are best adapted for shade and ornament. The Black oak is one of the best for shade. Standing alone, it develops a thick, semi-orbicular head, with deeply cut foliage of dark shining green, taking shades of orange in autumn. It grows rapidly and will flourish in poor soil. The Scarlet oak is a fine ornamental tree, quick growing, with an airy, open head, and deeply cut glossy foliage. Its scarlet tints in the coloring season are among the most brilliant of our woods. The Red oak as a hardy wayside tree, adapted for the cooler parts of New England, should rank with the rock maple.

The Swamp White oak, *Quercus bicolor*, from its frequent appearance in the low grounds of the eastern counties of Massachusetts, constitutes one of the characteristic features of the region. It is here a tree of second size, of narrow breadth, but made picturesque by the ragged branchlets thickly crowded upon the trunk below the main limbs. The tree seems to be battling with the elements, and perfectly at home in doing so.

I pass to another nut-bearing tree, the Beech, of which we have but one species, *Fagus sylvatica* var. *Americana*, of native growth. We are accustomed to think of the beech chiefly as a forest tree, and no forest in New England presents more points for admiration than one of beech. We rarely see this tree fully developed in open spaces, as when young it seldom escapes the browsing of the cattle; but when fully grown, in an open space, it is a wide-spreading, symmetrical tree. Upon near approach its smooth bark, long, finely divided branches, and clean appearance through-

out add to its attractiveness. It roots near the surface, which renders its transplanting when young easy; and, if done with care, successful. I have seen but few of these trees set purposely for shade and ornament; but these were fine trees, much prized by their owners.

The Chestnut, *Castanea vesca* var. *Americana*, is the loftiest of our deciduous forest trees. Although in open ground it is a massive, imposing tree, yet on account of its stiff manner of branching and formal outline it hardly commends itself for home or wayside planting. Its place is in pasture grounds or in waste corners of farm lots. There, in old age, when broken and mutilated by winds and ice, the trunk decayed to a mere shell — still, years after, bearing as in youth leaves, blossoms, and fruit — it is a grand and picturesque object, which excites at once our sympathy and admiration.

The Tupelo, *Nyssa multiflora*, is one of the rarer trees of New England. Its habitat is in swamps, near ponds and stagnant pools, which it frequently overhangs, and along meadow streams, from which localities it spreads sparingly to higher grounds. In its manner of growth it is the most eccentric of our native trees. The normal type of its outline approaches the "umbrella" shape; but without apparent cause different specimens run into a variety of grotesque styles of ramification. The branches usually incline downwards, but without curving; some straight, some twisted; some long, others short. The main branches are usually armed with numerous stiff but finely divided twigs, from trunk to tip. Occasionally, in open ground, may be seen a tupelo perfectly regular in outline; the closely crowded limbs resting upon each other, the thick, shining foliage covering all — a mound of deep green, glossy verdure. Such a tree is a gem in any landscape. The foliage in autumn is the most brilliant in its red and scarlet dyes of any we have; and it is the earliest in coloring. In this it precedes the red maple by from one to two weeks. So it flashes out from among soberer trees, often in gloomy surroundings, as though consuming in its own flame. Wilson Flagg says that this tree is one of the brightest ornaments of our forest in autumn. I do not think that it responds kindly to cultivation, and it might not harmonize well with the surroundings of artificially ornamented grounds; but in the wild and often desolate places which are its native haunts it should delight every lover of sylvan growth.

The American Hornbeam, *Carpinus Americana*, is a small tree with foliage resembling that of the black birch; having, in the style of its branching and the smoothness of its bark, the aspect of the beech. Its singularity is in its ridged or fluted trunk, and in the odd appearance of its fruit-sacs, which are composed of several transformed leaves united at their bases. In open ground this tree makes a broad, low, leafy head, of much beauty. It colors finely in autumn, presenting a mingling of rich purples with scarlet and crimson. It is nowhere common, but, in small numbers, grows by streams and the borders of damp woods. It seems to have largely escaped the notice of tree culturists, but is decidedly worthy of attention. It is a pretty tree, having too the merit of rarity.

The Hop-Hornbeam, *Ostrya Virginica*, also known among woodmen as "Lever-wood" and "Iron-wood," belongs to another genus; represented in this country by one species only, and in Europe by one. It is a small tree, with a round symmetrical head, having in its fine spray, its leaves, and the color of its bark a noticeable resemblance to an elm. It is striking in late summer from its numerous capsular heads, resembling hops, containing the seeds. This tree would be attractive in a collection.

The Tulip tree, *Liriodendron tulipifera*, exhibits the nearest approach among our natives to the great magnolias of the South. It is a tall, stately, quick growing tree, with a strong but informal style of branching. Its leaves are beautiful at all times, and its blossoms are its special charm in June. The tree is an ornament to any grounds, and it is sufficiently hardy for sheltered localities in Massachusetts. It is quite "local" in its native growth.

The American Nettle-tree, *Celtis occidentalis*, is so rare in this region that many who are quite familiar with forest trees have never seen it; or have confounded it with the elm, to which it bears strong points of resemblance. It is, however, a much smaller tree, and has only slightly its drooping habit. It is a hardy tree, persistent in its growth, whether upon the sandy seaside or in the crevice of a dry ledge. Well treated, it is a comely tree. It is readily distinguished late in the season by its stone fruit, with a thin sweetish pulp, blue-black in the autumn, remaining upon the tree through the winter.

The Hackberry, *Celtis crassifolia*, is with us a still rarer tree than *C. occidentalis* but strongly resembles it. A careless

observer would probably mistake it for an elm, unless he noticed the stone-like fruit upon it in autumn and winter. It is, however, a round-headed tree, completely filled with small, fastigiate branches. Body and limbs are thickly studded with corky knots. It is a singular tree, worthy of special notice. Massachusetts is probably its northern limit. There is a fine tree of this species near the canal in Lowell, which, with a few smaller ones near by, is the only one that I have seen.

I must pause here in my notice of our native deciduous trees; having reserved time for but brief reference to our native evergreens. In the central parts of New England we have three species of native Pines, all worthy of cultivation for use and ornament. The White pine, *Pinus strobus*, is a handsome and useful tree in all stages of its growth. Wherever the seeds are planted, by nature or the hand of man, the young saplings will quickly cover with a protective garment of cheerful green even bleak hill-tops, sand wastes, or neglected gravel-pits. For a complete, quick growing windbreak, no tree equals it. Developed singly, or judiciously grouped with other species, this tree produces fine landscape effects.

The Pitch pine, *Pinus rigida*, has a stiffness and often scragginess in its aspect in open ground, which makes it undesirable as an ornamental tree. But its usefulness in redeeming sand wastes and its fair proportions in good ground should secure it from neglect by the tree culturist.

The Red pine, *Pinus resinosa*, is a tree of pleasing effects. It reminds one of a pitch pine, but is in every prominent aspect a far handsomer tree. It grows erect, tall, rather slender, with its branches in distinct whorls, curving slightly upwards towards the ends. A marked beauty of the tree is seen in its long leaves, which grow in twos, and are grouped in distinct "brushes." It is of quite rapid growth, and considering its fine qualities should be highly esteemed as an ornamental evergreen. I have met with fine natural clumps of this species in the northern part of Middlesex county, Mass.

The three species of Spruce native in Massachusetts are found in most districts of New England. The Black spruce, *Abies nigra*, is a hardy tree, common in the cooler hill regions. It has a close thick-leaved head of symmetrical conical shape. The dark green hue of its foliage gives it a sombre effect when viewed by

itself; but it heightens the cheerfulness of other trees in judicious grouping.

The White spruce, *A. alba*, is a tree often mingled in the same forest with the black spruce. It is of moderate size, slender and more tapering than the black spruce, more graceful in its habits of growth, and a far better tree for ornamental purposes. It is highly recommended by nurserymen.

The most beautiful of the spruces is the *Abies Canadensis*, usually termed the Hemlock. A well developed tree of this species combines symmetry, gracefulness, and a certain refined freedom in its appearance which readily charms the lover of sylvan beauty. It will repay critical study. It is hardly reliable for hedges, but fine for standard growth. In nature it is one of the greatest charms of our northern woods.

Our native Cedars and Junipers and our American Larch are worthy of attention; but at this time I am compelled to omit further mention of them.

So much, then, for what remains of our native forest growth for the protection of our wind-swept hills, for the renewal of our desiccated plains, for refreshing shade along our highways and around our homes, and for pleasing landscape effects everywhere. We do not meet in our woods that luxuriant growth and those gorgeous blooms which distinguish the tropical forests; but the variety in habit and form of growth among our native trees, and the delicacy and beauty of their foliage afford never-ending delight to those who have been led to note their attractions. Said a friend to me, "God be praised for the beauty of an oak leaf!" He spoke well; and he might have multiplied his praises a thousand-fold, as applied to all the varied beauty of our woods. But to get the best of a thing we must know it thoroughly; so to derive the fullest enjoyment and largest benefit from our trees we must be led to know them; to see wherein they are useful, picturesque, or beautiful. Emerson says, "A tree which furnishes a cooling shade to the inhabitants of a house, is at the same time and on that account its best ornament." So people should be educated to recognize the fitness of various trees to serve different purposes; and thus their value and beauty will grow upon them. Hence I say that back of all the planting should be a knowledge of the tree itself; of what it is going to be and to do, if it grow. Springing up before us at almost every point, as we walk or ride,

is this varied and choice display of sylvan beauty; yet except by a few it is unappreciated — because, in the best sense, unseen and unknown.

Here then the question presents itself: How shall an efficient interest in trees be excited? and how shall a proper recognition of their benefits be disseminated among the people? This Society has already begun an effective solution of this problem by its official recognition of the importance of the subject, as seen in previous papers and discussions relating to it. But allow me to suggest that, to arouse and make permanent an effective interest in this subject, *we should begin with the young.* It is our desire to save the land from the desolation of deforestation, to preserve the proper balance between woodland and open ground; and this upon every man's farm as well as upon the areas of states and broader sections. We should wish at the same time to develop something creditable to us, as an educated people, in the scenic effects and rural embellishments of which our sylvan growth is capable. This work should extend along the line of many years. Like the tree, it should be perennial. Let the *boy* begin it, and in old age he will still be seen with a spade in one hand and a young sapling in the other, planting for future generations.

I have now come to the point of asking permission to indicate what I believe to be an effective way of introducing this subject to our youth; and with this permission I will read a few paragraphs from a paper upon the "Relation of our Schools to Arbor Day" which it was my privilege to present before the teachers of Rhode Island at their annual meeting in October last. In the course of the paper was the following:—"I have said that planting trees upon 'Arbor Day' is well; but it is not enough. To make the best of Arbor Day, there should be preparation for it; and in the schools this implies something to be done all along the school year, of which this is the crowning day. The time to begin this is in youth; gradually forming a habit of looking upon them [the trees] with an appreciative eye; gaining a knowledge of them, as may be done, with little trouble; enjoying them in their growth, in their protection and their shade, and as lovely and picturesque objects in the landscape. But what can the pupils of our public schools, already overburdened with studies, learn about trees? Should time and strength be taken to teach this subject?

We all advocate, I doubt not, the introduction of 'object lessons'

in some form into our schools; and I will venture to assert that no more interesting material for such lessons can be found than may be drawn from our native trees — their shape, their ramification, the appearance of the bark, the limbs, the buds, the leaves, the blossoms, the fruit, and other things which relate to their usefulness and fitness for adornment. It is profitable, doubtless, for a skilful teacher to give object lessons upon crumbs of bread, bits of glass, scraps of leather, fragments of ore, and the like. But a lesson upon some common forest tree might, if properly managed, give the pupil an interest in that tree which would last for a lifetime.

There is a strange and almost unaccountable ignorance about trees. Question even adult people upon the subject: What kinds of trees grow about us? What shapes do they assume? What soils and localities are they adapted to? When do they blossom? What shapes do their leaves take? How can different species be distinguished from each other? What trees should or should not be planted upon the streets, and why? Where should a rock maple be set? a red maple? a white maple? Why do hundreds of trees set in public parks die at once or live a lingering death? How many kinds of oaks have you in your State — hickories, birches, etc.? Of these commonest of natural objects, that furnish you timber, fuel, shade, fruit — that shelter you from the blasts, that give that incomparable beauty to our New England landscapes — that are your constant friends and companions from the cradle to the grave — what can you tell about them? Try a few of these questions and see what answers you get!

I grant that we should not attempt much in the way of forestry study in our schools; little or nothing which would add to the *task* work of the pupils. But I will indicate a few things which I think may and should receive attention, in this 'object lesson' work, and in preparation for an intelligent and effective use of Arbor Day:

First. Call attention to fine trees, easily observed in the vicinity of the school-room, or in the village, or upon the streets near by. Ask the pupils to name and tell about others. Bring out the facts about their forms, size, beauty, landscape effects, etc. Keep these general facts before them in all their subsequent observations.

Second. Call attention to easily recognized differences among some of the more prominent shade and ornamental trees, carrying this to the point of identifying different species of the same genus.

Third. Direct observation, at the proper season, to the various

parts of the trees, coming, gradually, to particulars; as, when the leaves are off, to the style of branching, seen even in a twig, and the consequent form of the tree. What better object lesson in spring time than a handful of sprays of the birches and alders, alive with their pretty catkins, each telling of its points to be observed and of the tree or bush from which it came?

Then it may be shown how the buds furnish, before the leaves appear, one of the surest means for the identification of the different trees. One oak has a large, thick bud; another, a small, pointed bud. The birch has a small, close bud; the beech a long, spindle-shaped bud, once recognized never mistaken. Make transverse sections of the buds, note their differences and their beauties.

The recognition of trees by their leaves is one of the most interesting and, in school, most easily managed means which we have. Children *will* pick up and handle and admire leaves, especially in the gala season of foliage; and why should we not utilize that natural curiosity and love for their beautiful forms and colors?

Fourth. Teach what trees are adapted for special purposes, and for different localities and soils. It is interesting to observe that there is this adaptation, and some knowledge of it might prevent lamentable failures in the work of Arbor Days, both public and private.

Fifth. The scenic effects of the different species, in all their variations of shape, ramifications, and foliage; in copse, in formal rows, in groups, in the forest, wherever nature or the hand of man has put them, should be impressed upon the pupils as opportunity occurs. Thus, like the tree itself, will appreciation of it grow.

So, again — in connection with the study of geography — the productiveness or sterility of certain regions, the recurrence of cyclones and floods or exemption from them, in given districts, would be explained by directing attention to the saving help of an abundant tree growth. It should be taught to the children, and thoroughly inwrought with their education, that the only thing which will prevent in our own country the desolation which has followed the deforestation of many sections of the old world is the maintainance of a proper proportion of wooded land."

The above and several other points were treated somewhat at length in the paper named; and the reasons for the introduction of this work into our schools were summarized as follows:

"*a.* Whatever kind of knowledge is of practical and general

use to the people should enter as a factor into the education of the young: and this information concerning trees will become in its application a perennial good to all.

b. There is no element of natural beauty that can be so easily or so inexpensively employed as that of the arboreal growth of a region like this; but knowledge and appreciation of it are necessary to ensure the best results.

c. Children naturally take to trees; they are therefore easily interested in everything about them.

d. Trees furnish a wide range of matter for the development of the powers of observation, comparison, and classification; and the material for these lessons is readily obtained, is inexpensive and always interesting.

e. A friendship is thus formed for trees; and its objects are never treacherous or disappointing. We naturally associate single trees with some person or family, some event, some treasured incident in our own lives. They stand as guardians of precious memories: thus — the old 'Homestead' trees, the 'Class Day' trees, the 'Liberty' trees and the 'Arbor Day' trees. Not less to us, and in a more intelligent way, do the trees of today speak, than did the forests of Dodona to the ancient Greeks who read oracles in their whispers."

But while preparing for future generations of workers through the schools and other less direct influences upon the young, there is still the work of today to be carried on. This may receive a very helpful impetus from organized bodies like this Society. They may properly encourage, or indeed originate the needed legislative enactments. Their members, recognizing the benefits of tree planting, could promote the work by forming in their several localities "village improvement societies," or more special associations for propagating trees. Better still, they can beautify the land through the silent influence of example. You can no doubt recall notable instances of what this modest method of work has done.

I have not promised much in the way of practical matter upon the topics which headed this paper. To what has been incidentally given I have but little to add. I would remark, however, that, as a rule, it is not safe to rely upon even a professional landscape gardener, if practically unacquainted with your grounds, to tell you what trees and shrubs to set, and where, for sylvan embellishment.

The picture which he may make will very likely look admirable on paper, but may be a disastrous failure in the attempt to make it real. A good knowledge of trees and shrubs in all their habits and a long and careful observation of the local exposures, climatic influences, and all other environments, are what is needed.

In grouping trees, if they are to be densely planted it is well to mingle those of deep-rooting habits, like the oaks, with those of an opposite tendency, such as the beech; also to place some of the evergreens with the deciduous trees.

If a characteristic development of single trees of several different species is the design, give ample room to each; or stunted, ill-shaped specimens will be the result.

In planting single trees, or groups, or rows, think how they are going to appear from different points of view, and what effect they are likely to produce upon the general picture.

Remember that a straight line of trees is stiff and formal, although sometimes it is necessary to place them so. For an avenue or vista effect uniformity may be desirable; but as a rule variety is more pleasing.

Planting trees thickly for present effect with a view of removing a part when they crowd each other, is not usually satisfactory, for those left never make so handsome trees as they would have done had they been allowed ample room from the start.

Trees should not be planted so near a dwelling house as to intercept the sunlight necessary for the health of the inmates, and this applies especially to the evergreens.

But while we should exercise care and foresight as to what and where we should plant, yet *plant trees;* encourage the work among the people; make a knowledge of and love for trees an object in the education of the young; and New England shall be what nature has done so much to make it—one of the most picturesque and attractive regions of this vast country.

Discussion.

O. B. Hadwen, Chairman of the Committee on Publication and Discussion, said that owing to the lateness of the hour there would be little time for discussion. He had learned much from Mr. Russell's paper. He spoke of the old elm tree in Congdon street, Providence, which he played under while a boy at school in

that city, and other old trees of various kinds at the grotto in the grounds of the Butler Asylum—a ravine with almost perpendicular sides and a road lighted with gas winding through it—which he visited last summer. He thought the Fern Leaved beech in front of the Redwood Library at Newport the finest tree of any kind he had ever seen; but it is not a native tree. Mr. Hadwen moved a vote of thanks to Mr. Russell for his paper, which was unanimously passed.

William C. Strong thought the paper very complete, but dissented from the commendation given to the Black Spruce. It does not hold its foliage as well as the Norway Spruce; and the White Spruce is also better.

Mr. Hadwen announced for the next Saturday a paper on "Chrysanthemums; their Varieties and Cultivation," by Arthur H. Fewkes.

BUSINESS MEETING.

SATURDAY, January 15, 1886.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President WILLIAM H. SPOONER in the Chair.

On motion of Edward L. Beard, William C. Strong, Vice-President for Massachusetts of the American Pomological Society, Benjamin G. Smith, Treasurer of the same Society, and George W. Fowle were appointed a Committee to act in connection with the Committee of Arrangements of this Society in regard to the meeting of the American Pomological Society in this city in September next.

Adjourned to Saturday, January 22.

MEETING FOR DISCUSSION.

THE CHRYSANTHEMUM; ITS VARIETIES AND CULTIVATION.

By ARTHUR H. FEWKES, Newton Highlands.

In a paper like this, more or less description of varieties would seem to be unavoidable; but as it would be a nearly endless task to describe them all, and at the same time would not serve the

purposes for which this paper was intended, I will confine myself to giving a list of such as I have found to possess superior qualities, selecting for description only a few that I deem worthy of special mention.

I do not pretend to say that my list contains all the varieties that are worthy of cultivation; but I think it will be found that all those I have selected are distinct and desirable sorts. As regards their cultivation, I will give an account of my own experience in the matter; following it with a few remarks upon seed raising.

In number, the varieties already reach far into the thousands; and each year there are added to this long list from fifty to a hundred more, by the various raisers of France, England, and America, and by direct importation from Japan.

While scarcely two varieties can be found exactly alike, many of them are so nearly alike that it is useless to consider them as distinct; for the time has come when the value of a collection depends more upon the judgment used in selecting than upon the number of varieties it contains. The selection of varieties is no easy matter; as everyone must know who has ever attempted to select a dozen or two from a large collection, especially if he has only a descriptive list to assist his examinations.

The diversities, in habit of plant, form of flower, and color of petal, are almost past comprehension; while the most accurate description that can be written falls far short of the reality, and can give but little idea of the true character of a variety.

How meaningless description seems when we compare our best efforts with the flowers themselves; for who can find words to describe the beautiful and endless variation in form of flower and petal and the exquisite blending and shading of colors that well nigh defy the skill of the best artists to represent. Their finest productions can do little more than give us a general idea of the beauty of the flowers.

In presenting a descriptive list of varieties I cannot hope to please every one, for the tastes of different individuals are often quite opposite, and what to one seems to contain all the elements of beauty to another is quite devoid of them. Thus to some the soft and delicate shadings of white and pink have no charms; and to others the beautiful blendings of crimson and gold seem gaudy; others can find no beauty in the delicately silvered amaranths; and so on through all the rich and beautiful colors so charmingly displayed in these flowers.

The classes into which chrysanthemums have been divided are ceasing to be of any great distinguishing value; for the Japanese run into the Chinese, and the Chinese into the Pompons, in such a manner that it is often difficult to tell to which class a variety belongs. As an instance of this I will mention the variety Duchess of Connaught, which is of pure Japanese origin, and true to its class when it first opens; but as the flower develops the petals gradually incurve, and at last form as perfect an incurved Chinese flower as need be. Also the variety Cullingfordii is as much Japanese as Chinese; and it often happens that from a lot of seed produced by a single plant we obtain varieties ranging in size all the way from large Chinese to the smallest Pompons.

But generally speaking those varieties are considered Japanese that have long feathery or ribbon-like petals, either reflexed, incurved, or falling about in a very irregular manner; while the Chinese have a very smooth and compact flower, either incurved or reflexed, with a regular outline. The ideal Pompon is very small in size, regular in outline, and with smooth reflexed petals; but it is sometimes quite large and somewhat incurved.

Among a great many beautiful varieties I will call your attention to the following, which seem to me to possess most excellent qualities. Twenty-five of them are Japanese, twenty-five Chinese, and twelve Pompons.

The Japanese are —

Belle Paule, white, shaded and edged pink.
Bouquet Fait, pink.
Daimio, amaranth pink.
Fair Maid of Guernsey, pure white.
Flambeau, crimson.
Fleur des Bois, deep brownish crimson.
Fulton, deep yellow.
Gloria Solis, yellow and crimson.
Gloriosum, light yellow.
Golden Dragon, yellow.
Grandiflorum, deep yellow.
Katakana, deep orange.
L' Incomparable, yellow shaded crimson.
Margot, buff and pink.
Mastic, nankeen.

M. Boyer, clear pink.
M. Délaux, brown crimson.
M. John Laing, brownish crimson.
Moonlight, pure white.
Mrs. C. W. Wheeler, orange and crimson.
President Parkman, bright amaranth.
Rosa Bonheur, deep amaranth.
Snowstorm, pure white.
Source d' Or, fine orange yellow.
William Robinson, yellow brown.

The following are Chinese —

Barbara, yellowish brown.
Cullingfordii, deep rich crimson.
Eve, creamy white.
Felicity, creamy white.
Gen. Slade, brown and yellow.
Gloria Mundi, deep yellow.
Guernsey Nugget, light yellow.
Hero of Stoke Newington, light pink.
Jardin des Plantes, deep yellow.
Jeanne d'Arc, white tinged pink.
John Salter, brown tinged yellow.
Lady Slade, clear pink.
Lord Wolseley, bronze crimson.
Mabel Ward, light yellow.
Miss Mary Morgan, deep pink.
Mr. Bunn, light yellow.
M. Roux, amber.
Mrs. Forsyth, white.
Mrs. W. Haliburton, white.
Nil Desperandum, crimson tinged with orange.
Prince Alfred, rose crimson.
Princess of Teck, white tinged pink.
Princess of Wales, white and pink.
Talfourd Salter, crimson and orange.
Venus, light pink.

All but six of the above are true incurves; many of them make fine plants, while others are more valuable for show blooms.

For Pompon varieties I will mention —

Antonius, light yellow, Anemone.
Brilliant, brown crimson.
Freemy, crimson brown.
Golden Mlle. Marthe, pure yellow.
Mme. Montels, light pink with yellow centre, Anemone.
Mlle. Marthe, pure white.
Mr. Astie, deep yellow, Anemone.
Mrs. Gane, pure white, Anemone.
Montgolfier, crimson and yellow.
Perfection, brown red, pointed yellow.
Salamon, reddish purple.
Sœur Mélanie, pure white.

Amongst the above are a few that ought not to be passed over with a simple mention of their color.

The Japanese variety Source d' Or is worthy of the highest praise. The flowers are not remarkably large but are of good size, reflexed, and very freely produced on stiff, erect stems. The plants are strong and bushy, and may be grown into large healthy specimens. The color is a rich yellowish orange, very distinct and bright; in fact, there is no other color exactly like this. With hardly an exception, whenever our plants are on exhibition at our greenhouses, this variety is the first or nearly the first to be selected by visitors, as it stands out distinct and bold from among all the others.

Equally distinct in color, but perhaps less valuable as a plant, is Katakana. When it is well grown there is nothing to equal this in its way, for color, which is a deep rich reddish orange. The flowers are of medium size, quite freely produced on erect branches, and the plant has a dwarf and healthy habit. In this variety the advantages of a moderate temperature, abundant sunlight, and fresh air are particularly noticeable; if these are wanting, the rich orange vanishes and the color is quite unsatisfactory.

L' Incomparable is another Japanese variety of peculiar beauty. It presents a pleasing combination of crimson and yellow. The ground color is yellow, heavily shaded with crimson in the outer petals, while the centre is quite pure. The shading appears as though a crimson powder had been dusted upon the yellow petals, falling very lightly upon some but gathering in heavy masses upon

others. The plant is dwarf and healthy, with an abundance of large flowers.

An entirely different style of coloring is seen in the variety Belle Paule. In this the flower is very large and double, with long reflexed petals of the finest white, overlaid with a delicate shading of pink which deepens into a distinct line at the edge. The plant is rather tall in habit but free flowering and usually healthy.

One of the most peculiar varieties, of recent introduction and of Japanese origin, is Mrs. C. W. Wheeler. The description as usually given is very misleading; for one would never know the variety from a description like this: "Immense perfect shaped flowers having outside petals orange and deep red centre." In fact each petal is remarkably broad and long and curves inward at the ends over the somewhat open centre. The outside or back of each petal is orange yellow, while the inside or face is of a rich brownish crimson. The flowers are very large and of great substance. Unfortunately this variety is very slow of propagation and in all probability will always be somewhat rare.

Of dark varieties, all things considered, Cullingfordii stands at the head. It is classed as a reflexed Chinese, but I have seen flowers of it that were as much Japanese as are those of Bouquet Fait and many other reflexed Japanese. The color is of the deepest crimson, very rich and lasting; while the habit is strong and healthy. The flowers are of medium size, but are produced abundantly.

There are many others that are equally worthy of extended description, but as it would be somewhat wearisome I will only call your attention to some of the most promising of the new varieties.

Among them — though not of the newest, yet of the most unimpeachable quality — I have already mentioned

Belle Paule.	Moonlight.
Cullingfordii.	Mrs. C. W. Wheeler.
Fleur des Bois.	M. Roux.
Frizou.	Snowstorm.
Gloriosum.	Talfourd Salter.

Though not previously mentioned I think equally well of

Beauté des Jardins.	MM. Thibaut et Keteleer.
Gorgeous.	President Arthur.
Hon. John Welsh.	

The most notable new Anemone flowered varieties are the two American seedlings Thorpe Junior and Mrs. Gane. Theformer is a large, perfectly formed flower of a beautiful pure yellow, raised by Mr. John Thorpe; and the latter a small, high centred, pure white flower of great excellence, raised by Mr. Henry A. Gane of West Newton. Timbale d' Argent though not of the newest is a beautiful addition to this class.

Among the newest I think favorably of the following, all of which belong to the Japanese class:

Domination.	Le Surprenant.
Enchanteresse.	Mlle. Mélanie Fabre.
Eugène Mézard.	M. Freeman.
Lakmé.	M. N. Davis.
L' Adorable.	Ne Plus Ultra.

Of the new Chinese varieties I think Cullingfordii, already described, and M. Roux are the most valuable. The latter is a true and perfect incurve, similar to Rival Little Harry, but of better habit.

Among Pompons I have seen nothing that seems to be a decided improvement upon older varieties, but the following might be mentioned as good — Black Douglas, Exposition de Chalon, and Élise Layellon.

The number of valuable early varieties seems to me to be quite small, and it is a question in my mind whether the very early ones — such as we have — are really desirable; for they come when the asters are at the height of their bloom, and are in no way superior to them, while requiring much more trouble in cultivation. If we could have varieties equal in beauty to our November flowering ones there would be no doubt of their desirableness; but such varieties have not as yet been attained. Those that have proved most valuable in my experience are the following:

Alexander Dufour, amaranth.
Lady Selborne, white.
Mme. C. Desgrange, white.
Mandarin, white shaded yellow and pink.
Mlle Lacroix, white.
Roi des Précoces, crimson.

On the other hand there are a few varieties that extend the

Chrysanthemum season far into the winter; in fact it is now not unusual to see them at Christmas. We find the following valuable in this way:—

Bicolor, orange and yellow.
Ceres, pink and white.
Ethel, white.
Gloire de Toulouse, amaranth crimson.
Grandiflorum, bright yellow.
Mrs. Charles Carey, white.
Snowstorm, white.
Thunberg, yellow.
And the new variety Le Surprenant,* crimson and yellow.

Cultivation.—With us the cultivation of the Chrysanthemum really begins as soon as the plant is through flowering; for it is in a great measure upon the good health of the cutting, taken from this old plant, that future success in cultivation depends.

Many growers, as soon as the plant is through flowering, cut it down to the pot, but this we consider a very hazardous thing to do; as many varieties seem naturally to have weak constitutions and these will sometimes refuse to start into growth if the old tops are cut off too soon. We usually cut the branches back quite severely at first, but the plant is never cut down to the pot until the shoots have begun to start quite freely from the roots.

The plants should receive as good cultivation after they have bloomed as they do before; for it is useless to expect a good healthy plant from an unhealthy cutting. From carelessness in this matter or from want of room, the old plants are very often packed away under the benches, or in some equally unwholesome place; and the consequence is that the shoots which start from the roots (from which the cuttings are usually made) will be very soft and weak, and one might say totally unfit for the purpose. Such cuttings should never be used when by any possible means better ones can be obtained. To mismanagement in this alone I attribute fully half the failures so common in chrysanthemum growing.

The chrysanthemum is essentially a sun-loving plant, and any encroachment upon its rights receives a sure penalty in sickly looking plants and blooms devoid of that exquisite coloring which makes this flower so charming.

*Specimens of this variety were shown by the essayist.

The plants as soon as they are through flowering should be placed in the sunniest position possible, with plenty of fresh air, judicious watering, and a temperature of from 50° to 55°. The matter of watering is a very important one at this time as well as through the summer weather. The plants are more likely to get too much water at this season than too little, but still they should never be brought to a wilting condition, especially after they have begun to make fresh growth.

As soon as the young shoots are three or four inches long, we take them off for cuttings; and place these in the cutting bench, in good clean rather fine sand.

Many cultivators advise no bottom heat for chrysanthemum cuttings; but we have tried both ways and find that by keeping them in a temperature of about 45° or 50° with a gentle bottom heat of about ten degrees higher, our cuttings will strike root much sooner and will lose nothing in health. Too high a temperature is a very prolific cause of failure in striking cuttings.

In making the cuttings such shoots should be chosen as have a fresh growing appearance, for those that are at all rusty or unhealthy, are quite sure to cause disappointment and trouble in the future.

In trimming the cuttings our practice is to cut off all but about three leaves at the top; for if more are left they are very apt to wilt, and after the cuttings have once become thoroughly wilted it is difficult to revive them, and often they will be a total failure.

The lower end is cut with a sharp knife, taking no notice whatever of the position of the leaves or joints; for the roots start as freely between the joints as they do below them.

Ample room should be allowed the cuttings while in the sand, for if they are too much crowded they are very apt to gather an excess of moisture, which will cause them to damp off; especially if they have previously suffered from dryness.

If everything goes well the cuttings will be rooted in about two weeks; and when the roots are from half an inch to an inch in length they are carefully removed from the sand and immediately potted into two and three-quarters inch pots.

It is quite important that the cuttings should be taken from the sand as soon as they are well rooted, for immediately after the roots are formed the cuttings begin to grow and there being no nourishment, to speak of, in the sand they necessarily become weak and stunted.

The soil into which the young plants are potted is composed of good sandy loam and well decayed stable manure in the proportion of about three of the former to one of the latter. Avoid a heavy clay soil, as the chrysanthemum seems to delight in one of a rich and rather sandy nature.

As soon as potted the plants are placed in a quite cool, light, and airy structure, and shaded for a few days from the bright sunshine by throwing a covering of paper over them. They are watered sparingly at first, but as the plants get accustomed to their new condition and begin to grow freely the quantity of water is increased as the condition of the plants may require; and from this time on to the end they are never allowed to suffer from want of water.

For the greater part of our plants that are to flower the coming autumn, the cuttings are put in to root from the first to the third week in March and potted as soon as they are well rooted; and when they have become established the healthiest are selected to be potted up preparatory to being planted out in the ground.

After the pots become well filled with roots, but before the plants become actually pot-bound, they are shifted from the two and three-quarters inch size to four inch pots and from that to five inch, as the necessity may be; for the plants should never be allowed to become pot-bound early in the season.

I should very much prefer an April cutting that had never been checked than one struck in February or earlier and allowed to become pot-bound; for one great secret of success in chrysanthemum culture consists in keeping the plants in a healthy growing condition from the time the cuttings are made to the time they come into flower.

With us pinching begins as soon as the plant is about six inches high. Our practice is to simply pinch out with the thumb and forefinger the smallest amount possible from the growing end, never cutting back to hard wood except in case of ungainly growth.

This pinching process is best done a few days or a week before the plant is shifted to a larger sized pot, for in this time the new shoots will have begun to start and will be in condition to use the nourishment supplied by the fresh soil.

Even when the grower has the advantage of a house capable of being ventilated to an unusual degree it is best to place the plants

in a cold frame as early as can be done with safety from frost. Here the plants can be hardened off and will be in better condition to start into growth immediately after planting out, which is usually best done about the middle of May.

For planting out, such a location should be chosen as will at all times have a full exposure to the sun and air. One so situated as to be protected from strong winds is desirable, but this should in no way interfere with the prime requisites of successful cultivation, sun and air. The plants can be so staked and tied that they will withstand all ordinary winds, but nothing will supply the deficiency of direct sunlight and fresh air.

With the proper soil and a high, open exposure, there need be little fear of mildew, the one almost unconquerable enemy of the chrysanthemum grower. For soil, we find a light rich loam the best, and prefer it quite sandy if possible; one that will not adhere to the roots in hard lumps but will fall away without taking the roots with it.

We place our plants about two and a half or three feet apart in rows. For each plant a hole about the size of a potato hill is dug and filled with manure, which is to be well forked into the soil. The hole is then filled up with loam; and we are careful that the surface is made lower than the surrounding ground, thus forming a kind of dish which will retain any water that may be given the plants rather than allow it to run away.

After planting out our plants are kept well watered until the roots have taken hold of the soil; from that time they receive no water unless the season be dry and the plants show signs of suffering, when we give it to them as often as needed; occasionally substituting liquid manure for the water. But whichever is used it should be applied at evening, so that it may not be evaporated before it can have time to soak into the ground.

As soon as the roots begin to take hold of the soil the plants will begin to push out branches very freely, and these branches as soon as they are three or four inches long are pinched in. This operation is repeated as often as the branches become long enough, until about the middle of July; after which the plants are allowed to grow at will, merely cutting back any unshapely branches that may grow.

There is a variety of opinion on this subject of pinching; some do not pinch at all, others only once or twice. But we find we

get more branches and consequently more flowers, by pinching quite frequently, provided it is not continued beyond the middle of July. The most severe pinching is done while the plants are quite small so as to secure as many branches near the bottom as possible. Of course the foregoing remarks do not apply to varieties that make shapely plants without pinching, for such are better left to their own resources.

Soon after planting out, each plant is furnished with a strong stake, and as the plant increases in size others are added in order to prevent the branches from being broken by the wind.

As the season advances many branches become so heavy that they are unable to sustain their own weight; and it frequently happens that what has promised to be a fine shapely plant will be irreparably disfigured by one or more branches breaking off. To prevent this we do not depend entirely upon staking, but from time to time, as the plants enlarge, we pass strings around them in such a way that one branch sustains another. By so doing we seldom lose any branches through the summer; and much time is saved when the plants are potted.

In the way of insects the worst pest to be encountered is the black aphis, which will cause much trouble if allowed to increase to any great extent. We have found "Dalmatian powder" applied with the bellows to be the most effectual remedy.

About the second or third week in August we begin lifting our plants from the ground. If the ground is very dry so much the better, for the plants will lift better and recover sooner than when it is moist. They are taken up thus early because it is better they should form their buds after they are lifted; for if the potting is left until late in the season the buds that are already formed will receive a severe check, which is apt to result in deformed or one-sided flowers.

The plants are lifted with all the roots that can be secured, but in order to get them into pots of a reasonable size a considerable quantity of the soil is carefully shaken from them, provided it is of such a nature that it will fall away easily without breaking off in lumps.

For this potting we use soil containing more manure than for the small plants in the spring, having about two parts of good loam to one of well rotted stable manure. The pots are selected according to the size of the roots, care being taken not to have them too large.

In potting large plants the soil should never reach higher than to an inch below the rim of the pot; for there should be ample room for giving an abundance of water and liquid manure.

After the plants are potted they are placed under trees, or, what is much better, a tent made of cotton cloth, where they can have plenty of air and at the same time be shaded from the hot sun.

They remain here about a week, or until they seem to have recovered, when they are taken to the same ground they grew in and plunged to the rim of the pot in the soil. As the plants begin to grow afresh they are given plenty of water that they may never become dry. The young roots soon reach the sides of the pot, after which liquid manure may be freely given so long as the buds are growing.

As cold nights approach, the plants are placed under glass, even before actual frost appears. I think it a mistake to try and keep the plants out until the actual appearance of hard frosts: for we have many nights not cold enough to freeze but cold enough to check their growth, and this checking of the sap is an acknowledged cause of mildew wherever it appears. All through the early fall we have days that are hot enough for midsummer and nights nearly cold enough for frost. This kind of weather cannot be conducive to health in the chrysanthemum; for it is a plant that must be kept growing from the time the cutting is struck until it has flowered.

For a long time after placing them under glass they require no artificial heat and should be very freely ventilated through the day. In cold, cloudy weather it is best to introduce a little heat into the house if only to dry out the dampness.

Soon after they have been brought in, the black aphis will make its appearance and should be persistently fought with tobacco fumes as long as the plants remain inside.

For those who have no greenhouse but wish to cultivate the chrysanthemum, we advise procuring young healthy plants in May and treating them in a way similar to that already described until the time for housing; after which they may be taken in on cold nights and placed out of doors through the day.

As house plants they should be kept well watered, syringed as often as possible (care being taken not to wet the flowers), and kept in the coolest and airiest place to be found.

The black aphis or black fly is usually found quite troublesome; but this can be conquered by persistent application of Dalmatian powder with the bellows.

If it is desirable to keep the old roots over the winter they should be placed where they may be kept quite cool, and if possible near a sunny window. Early in the spring they may be divided and planted out in the open ground and receive the same treatment as young plants.

The would-be cultivator must not expect that his plants will always be as large or his flowers as fine as those to be seen at our fall exhibitions, for the chrysanthemum requires unremitting care and attention from the beginning of the young plant to the end of the flowering season; and experience is as valuable here as elsewhere. But one should not be discouraged, for a fair amount of success is attainable with ordinary cultivation, and one will probably feel repaid for whatever time and expense he may bestow upon his plants.

The very large show blooms seen at exhibitions are the results of special cultivation, and should not be considered as fair examples of all that is good in chrysanthemums, but rather as exceptions showing to what a state of perfection they may be brought by skilful cultivation.

To produce these blooms we usually take late cuttings, pot them up as often as required, and keep them plunged in the ground through the summer. The plants are allowed to make but one stem, and this will usually branch into about three; and on the end of each will be formed several buds, all of which should be removed except the one at the extreme end, which is almost always the largest and strongest. By this means the whole strength of the plant is thrown into two or three flowers and sometimes only one. The plants must never be allowed to become dry and must be given liquid manure frequently.

As the buds begin to show prominently in the fall we go over our entire collection and disbud such as may need it; for some varieties form more buds than can be brought to perfection, and more or less of these should be removed as soon as it can be done with safety. Those that have large bold flowers receive the most benefit from this operation, and it should be practised even where they are grown as specimen plants. Of course, for this purpose fewer buds should be taken off than when specimen blooms are

required. The strongest bud should be left at the end, such only being removed as will interfere with its development.

As to plants intended to be grown for exhibition, such varieties should be chosen as produce an abundance of blooms of good color and are of a good healthy habit.

A plant having a scarcity of blooms or a poor straggling habit can be improved—but can hardly be made presentable—by fastening each bloom to its own separate stake. It is true that a certain amount of staking is always unavoidable, but it should never be practised except where absolutely necessary.

The ideal form for a show plant should be one with the height not exceeding the width; and much less when practicable. I say "when practicable," because there are many beautiful varieties that utterly refuse to be kept down to a low spreading form; as they throw but very few shoots (sometimes only one) when pinched back. Such varieties should be pinched back as much as possible while very young, so as to secure as many branches near the ground as may be.

A plant that can be looked down upon, or that has the whole mass of bloom considerably below the level of the eye, is much more satisfactory to the average observer than one with the blooms much higher, no matter how large the plant may be. A very beautiful form of plant when well grown is the trained standard; but it is seldom that we see it in perfection.

In selecting varieties for standards those that have naturally flexible branches should be chosen if an umbrella-shaped head is desired, and such as have very strong and stiff branches when a compact head is wanted. Avoid those varieties that cannot hold their branches on without the aid of stakes, for they are sure to be the most prominent objects about the plant. If a standard cannot be grown without the aid of more than one stake to protect the stem, the time and patience needful for its production had much better be applied to something that will give greater satisfaction for the outlay.

There are three things that should never be denied a growing chrysanthemum plant, viz.: water, sunlight, and fresh air; if either of these is wanting failure is quite sure to be the result.

Plants for exhibition should always be plainly and correctly named, for our shows are frequented by people who come to see what varieties are good and desirable, and to make notes of their names. If a plant is incorrectly named they may not at the time

know the difference, but when they attempt to purchase the same thing, under the name they have taken, they find it not attainable.

Seed Raising.— This subject is one that should command the attention of every grower of chrysanthemums; for the operation of saving seed is a very simple one, and at the same time intensely interesting.

Until within about ten years all the new varieties were raised in Europe or imported from the East, but there is no reason why we should not raise as many good varieties here as elsewhere. Let us not, however, be too eager to thrust our productions upon the public; but let us be sure that what we do send out are of superior quality, and not be guilty of sending forth a host of inferior varieties.

All that is needful is to take the plants, after the flowers are fully open, and place them in a warm and dry place; any warm, sunny room will do. The whole object seems to be to prevent the collection of moisture among the florets, which causes them to decay before the seed arrives at maturity.

An abundance of seed may be raised without the aid of the brush, and many hold that there is nothing gained by artificial fertilization. But I have proved to my own satisfaction that it is attended with as good results in the chrysanthemum as with other plants.

Mr. A. Forsyth, in an article on raising chrysanthemums from seed, writes as follows in the "Gardener's Magazine" for April 20, 1872: "But how about hybridizing? you will ask. Permit me, in all sincerity and politeness, to say that hybridizing the chrysanthemum is fudge! Take your seed as you can get it, and with it take your chances of the crossing nature has accomplished for your benefit; but do not suppose that any one less gifted than a magician can manipulate the flowers of the chrysanthemum with the certainty that we operate on the flowers of geraniums and fuchsias."

Now I do not consider myself a magician, but in no less than five different cases I have accomplished the object I had in view by hybridization, or, more properly speaking, artificial cross-fertilization. That is, I wished to obtain the counterpart, in everything but color, of a certain variety. To be sure, not all of the seedlings were good; but in each case I began by selecting varieties that were as nearly as possible what I was striving for.

Mr. Salter, in his day one of the prominent raisers of chrysanthemums, has stated that he seldom saved as worthy of cultivation more than one out of two thousand seedlings. In the spring of 1885 I planted about forty hand fertilized seeds, and from their product I have saved, as being worthy of cultivation, six and possibly eight varieties.

This last spring I planted a seed, the only one formed in the flower from which it was picked, and from this seed I obtained one of the most distinct and beautiful varieties we possess. Strange as it may seem, this flower had none of the characteristics of the pistillate parent; but all of those of the staminate, except color.

As there has been considerable misunderstanding about the operation of hand fertilization, I will give a short explanation. Botanically, the chrysanthemum belongs to the Compositæ, an order of plants whose flowers are crowded together in a close head; this head is what is commonly called the flower, but if we examine it closely we shall find it composed of a multitude of very small, mostly perfect, flowers, often of two forms; those on the border having long flat petals, and those in the centre being tubular.

In its normal form the chrysanthemum resembles our common white-weed; but from long cultivation it has become double; or in other words the tubular florets have been converted into florets having the same long flat petals as those in the border. Usually by looking in among the petals a few of the tubular florets will be found still remaining, and these are the ones which bear the seed. In all the seed I ever saved I have never found one adhering to a floret with a ligulate corolla but always to a tubular one.

Ordinarily each one of these will be found to have a perfect pistil and stamens; and when the floret first opens the pollen will be found adhering to the outside of the closed stigmas. By taking this pollen on a small soft brush and carrying it to a floret on a plant of another variety, on which the stigma has had time to open, and brushing the pollen upon this open stigma, cross or hand fertilization is effected.

By simply placing one plant by the side of another, cross-fertilization is sometimes accomplished through the agency of the wind or insects. But in a very double flower the fertile florets are few in number and nearly inaccessible to insects unless the petals are

cut away; and even when this is done the insect is more likely to bring pollen from some single bloom than from a double one. Considering these things I think we have a better prospect of obtaining good results from carefully hand fertilized seed than from that which has been naturally fertilized.

As to the future of the chrysanthemum, I think it has come to stay; for blooming as it does at a season of the year when there is nothing to compete with it there is no reason why it should not hold a permanent place in the estimation of every lover of flowers.

Discussion.

E. W. Wood was called on and said that the paper was prepared by a cultivator who had given more direct personal attention to the chrysanthemum than almost any other; and it left little to be said. The chrysanthemum is of easy cultivation and comes to perfection in a short time. Nothing surprises visitors to our chrysanthemum shows more than to be told how short a time has elapsed since the plants were started from cuttings. The speaker emphasized the importance of beginning with healthy cuttings; he had lost some of his best varieties by inattention to this point. If a plant is not vigorous, or of only doubtful vigor, it is of no use to try to grow it; he had never succeeded in restoring an unhealthy plant. They cannot be grown under the shade of bushes but must have an airy, open place. Mr. Wood said in regard to temperature that one grower kept his plants in a cold grapery where it was almost freezing, so that they were dormant. One grower put in his cuttings the fifteenth of March, which is early enough for house decoration, but for exhibition a large proportion are started in January. If drawn in a warm greenhouse they are invariably spoiled. With a temperature of from 50° to 55° by night they will spindle and the tops will die and all the care that has been given them will be lost. Shifting before they become pot-bound gives a basis for large healthy plants for exhibition.

Mr. Wood hoped that some one would be able to tell the cause of the failure in almost every instance of satisfactory bloom from the chrysanthemum last season. There was much wood showing blind. He pinched his plants back as late as the 25th of July when the ground was unusually dry, and they did not make the growth after pinching which is desirable. He had thought this might

have been the cause of his ill success, but this theory was upset by the failure of those who watered. At all other times his plants have done well.

The chrysanthemum seems to come into bloom at a time when there is nothing else; other plants are then making their growth. Its increased popularity is shown by the displays in the florists' windows. There is no flower from which people can get more satisfaction when used for house decoration. But they are frequently put into too warm places, and then, having been previously kept in cool greenhouses, they will not last more than a week. If kept in cool rooms in sunny positions they will last six weeks. We have hardly commenced the cultivation of the chrysanthemum here, as compared with Europe. But the premiums for this flower at our next exhibition have been nearly doubled, and the speaker predicted that its cultivation and exhibition would largely increase.

Edward L. Beard enforced the practical suggestion of the essayist that healthy cuttings cannot be had from plants cut down at once. Many persons are in the habit of cutting down their plants as soon as they have bloomed. Bottom heat is used only by Dr. Walcott; who takes off cuttings and plunges them, after some weeks' growth, into a hot-bed where root action is stimulated by artificial heat, and allows his plants to get two feet high before planting them in the ground. The speaker thought the hardier treatment the more natural and reasonable one. He doubted whether the chrysanthemum could be made a good house plant; our rooms are kept too warm and the plants become bare or infested with insects. He built a temporary greenhouse five feet high at the back and two feet in front, so constructed that it could be taken apart, which holds about fifty plants. They lose their leaves owing to the dampness, and though they would doubtless do better with a little heat he had flowers until the fifteenth of December, when the thermometer fell to 10°—Antonius was perfectly hardy even then. He could cut a bushel of flowers, and he recommended the plan to amateurs. Artificial fertilization is indispensable to the development of chrysanthemum flowers in the fall. People complain that the chrysanthemum ceases to be valuable after the twentieth of December. He suggested cutting off the plants in late spring and growing them on, when they would bloom until February.

The speaker had noticed in Dr. Walcott's collection a seedling

which he considered an inprovement on Mrs. C. H. Wheeler. The color of that variety is somewhat dead, but this seedling was of an intense crimson, equally large and much more brilliant.

Charles M. Hovey said that he was very successful in raising chrysanthemums when no one else knew anything about them. In 1832 the prize for the best display was awarded to him by this Society. The chrysanthemum and camellia were then his pets. The London Horticultural Society took an unusual interest in the chrysanthemum, and in 1821 sent Mr. John Damper Parks to China to search for these and other plants, and spent a large sum of money in delineating and introducing them. Fifty years ago the speaker possessed sixty varieties which he had imported; they were good kinds and beautiful plants, such as the public want today, but it did not then take as a popular plant. Exhibition flowers are not adapted to general purposes. He cultivated them very much as Mr. Fewkes had directed, and had nothing else in the house. He had "tasselled" varieties which were very much admired; and he has continued to import the best varieties.

Their cultivation is easy in little plants two feet high. Plants cannot be expected to flower perpetually. He propagated by layers, turning out the plants and making the layers in June in five or six inch pots. They did not form exhibition plants, but very pretty ones for home decoration. He recommended this method to those who only wished to grow a few plants for that purpose. Neither the rose nor any other flower requires such unremitting attention as the chrysanthemum, to secure exhibition plants. He thought that he pinched too late. If the early kinds were planted in the open air they would afford much gratification. He had seen them in Newton blooming every year; if slightly covered with straw they will live through the winter in the open ground and bloom the second year. One year he kept his whole stock over. The chrysanthemum is really a cool house plant; too much heat brings the aphis. Division of the roots in May will give as good plants for parlor decoration as any way. He has divided plants of new kinds and saved them. He hoped the increased premiums would bring better exhibitions. The chrysanthemum was raised in quantities by Robert Buist of Philadelphia, and by others forty years ago.

W. C. Strong asked whether the late flowering of Le Surprenant, exhibited by the essayist, was due to the variety or to the cultivation.

Mr. Fewkes replied that the variety seemed to be a naturally late one; the buds were small when others were in flower. He had never practised taking off cuttings in summer to any extent; but so far as he had they flowered later.

Mr. Hovey said in regard to retarding blooms that he once placed some old plants under the stage to take cuttings from, but they bloomed in February and March. He thought this early flowering on new growth the only way to get them out of season.

W. A. Manda advised to strike chrysanthemum cuttings about New Year's day, and keep potting them on until a six-inch pot is used. He would pinch them until the middle of August. Plants thus treated furnished as good blooms as those not pinched.

They like sandy soil; the soil at the Botanic Garden in Cambridge where he is gardener is rather heavy, and they never did well until he mixed sand with it. When planted out he mulches them with straw or hay. When taken to the greenhouse they do best in the full sun and the house should be airy; then they do not lose any leaves.

Joseph H. Woodford spoke of the progress of chrysanthemum culture. When in Europe in 1866 he made note of the best growers. Adam Forsyth then took most prizes. He saw photographs of plants five feet high; and brought home rooted cuttings, which he gave to Mr. Edwin Fewkes, but there was then so little demand for the flowers that Mr. Fewkes only saved a dozen out of a hundred plants which he raised. People were not then educated up to the chrysanthemum, but now all commercial growers are doing their utmost to promote the growth of this flower. Plants must not be pinched down to the hard wood; if this is done they will not break.

Mr. Fewkes said that they saved only the White Trevenna and Gloria Mundi. The former was the only one that would sell. Last year they got only a hundred good plants out of seven hundred planted out. These were all treated alike, except that the good plants were grown in new soil and the others in soil that had had chrysanthemums grown in it for several years. He thought cold nights injured them; they were nearly all potted at the same time, but the hundred good plants were taken in earlier.

Mr. Hovey spoke of the magnificent display of chrysanthemums at the Crystal Palace, London, in 1879.

Mr. Fewkes remarked that he thought President Parkman, one

of Dr. Walcott's seedlings, equal to Progne. The color is not quite so deep but it is equally beautiful.

Benjamin G. Smith said that he had endeavored to cultivate fifty or sixty chrysanthemum plants, but had failed, and Mr. Fewkes's essay had taught him one thing that he did not know the importance of before — to plunge the plants after potting.

Mr. Fewkes said that plunging saves full half the watering. English growers say that manuring is a great cause of chrysanthemums going blind; he has never given a great deal of manure, but always some.

A paper by O. B. Hadwen on the "Degeneration of Fruits and Vegetables," was announced for the next Saturday.

BUSINESS MEETING.

Saturday, January 22, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President Benjamin G. Smith in the Chair.

The Secretary read a letter from the family of the late Hon. Marshall P. Wilder, gratefully acknowledging the memorial of their father adopted by the Society, and the expressions of esteem for him and sympathy for his children.

Adjourned to Saturday, January 29.

MEETING FOR DISCUSSION.

Degeneration of Fruits and Vegetables.

By O. B. Hadwen, Worcester.

The term degeneration, in its larger definition, when used with reference to fruits and vegetables, is generally understood to apply to those kinds, which, having been cultivated for a longer or shorter period of time, and having had their day and generation, seem to have run out and no longer to retain their original characteristics. Nature seems to have endowed every plant known in the vegetable kingdom with an allotted term or definite period of

life; especially when growing in its native climate and soil, and surrounded by conditions not unfavorable to its life, growth, maturity, and method of reproduction.

In attempting the inquiry into the period of longevity of fruit-bearing trees, and fruits growing thereon, together with the fruit-bearing bushes, shrubs, canes and vines, I find but few data relating to the subject, and must rely largely upon my personal observation and experience, and my own recollections of the past fifty years.

All the fruit-bearing plants are naturally grown from seed, planted by the intricate processes of nature. The seed contains all inherent natural forces requisite for reproducing its kind; and the seedling plant seems endowed with the vitality and functions requisite for and pertaining to its growth, maturity, and reproduction during its destined period of life.

The time allotted for the continuance of plant life seems as variable as the external features of the plant itself. While the limit of human life may be three score years and ten, in tree or plant life we know it may be many times three score years. The average lifetime of the lower animals is well known; but comparatively little is known of the life of fruit-bearing trees, and even less regarding the time our popular varieties of fruits will continue to be produced in perfection under the prolonged cultivation of the sagacious horticulturist.

The causes, natural and artificial, of fruits degenerating and becoming unworthy of cultivation are but imperfectly understood; as the many sorts seem to be subjected to many varying conditions. In the case of each we have to consider its natural hardiness and longevity, the influences of soil and climate, the stimulating effects of liberal cultivation, the mysterious influences of engrafting, both as to stock and scion. All these and similar questions underlying the subject are so clouded and obscure that we can neither fully explain nor comprehend them. Nevertheless there are some facts that seem to throw a little light upon the subject. While perhaps it is utterly impossible to fully verify the causes that seem to augment the degenerating tendencies in fruits, the facts we rely upon seem apparent, and although the evidence by which we trace the causes seems partially circumstantial yet it is unequivocal, so far as it goes, and cannot well be set aside, in communities where cultivation has been pursued for fifty years or more by "the art which doth mend nature."

The pear trees grown from seeds which were planted by the earlier settlers of this country were of a robust habit of growth, attaining large size and great age, and have outlived many generations of men; and of those known to have borne fruit as early as 1663 some are still alive. The pear tree is indigenous in sections of the northern temperate zone, flourishing as far north as the fifty-seventh degree of latitude, and is grown in this country from the British Provinces to Mexico. In acclimating and growing the pear in a warmer climate, its primitive habit of long life seems to be partly lost. Growers long since abandoned planting the seeds from the original fruit, using instead the seeds of the engrafted sorts, which are of a more tender habit; by this practice breeding into the pear tree an inherent tendency to shortness of life. The continued process of engrafting and forcing by high cultivation and also growing in an impoverished soil — each and all may exert some influence in the direction of degeneracy; and it is certainly evident that the trees are everywhere tending to earlier fruitage and shorter life.

The almost universal practice of propagating desirable sorts by engrafting or budding has undoubtedly the effect of gradually, but surely, working a serious injury to some fruit-bearing trees. The tendency of continuously planting the seeds of improved sorts is very much the same as what is called in cattlemen's parlance "in-and-in breeding," which if long continued in a given line is a sure and constant cause of degeneration.

Now, if the tree from any cause is losing its natural stamina and force, or becomes defective or diseased, the weakening of its natural functions very soon becomes manifest in the fruit. The St. Michael, in its day the glory of the pears, has now become wholly unworthy of cultivation. Sometimes it seems to recuperate in new countries and thrives for a time in a virgin soil, but soon relapses into its now normal condition. The Flemish Beauty affords another illustration of degenerating tendency. It was first brought into notice in 1834, and promised well for many years, but has now become unworthy of continued cultivation.

In the catalogue of trees grown in the nursery of the late William Kenrick in the year 1838 (he being then one of the prominent nurserymen in Massachusetts) I find, in the class termed "Old Pears," twelve sorts of which not one has been shown on this Society's tables for years. In class second, termed "New

Pears," I find eighty-seven; of which seventeen varieties only are seen at our exhibitions, and but four of these are generally approved, viz.: the Bartlett, Bosc, Seckel, and Angouleme, and the rest are only occasionally shown. In the list of new pears received in this country from Europe in the years 1834 to 1836, consisting of of a hundred and forty varieties, which have been tried by our cultivators and (most of them) shown on our tables within the past forty years, I find but two that are now considered worthy of cultivation; and Mr. Kenrick mentions a hundred other sorts received but not tried.

In the catalogue of the late William R. Prince of Flushing, N. Y., for the year 1839, designating by name three hundred and sixty-seven varieties, I find but thirteen varieties that are seen on our tables. Then we are made aware of the very numerous sorts of pears which were being brought into notice forty or fifty years ago—more than three hundred and fifty varieties, out of which less than twenty are on our premium list for the present year, and the other three hundred and thirty have practically gone out of cultivation. In the meantime very many more sorts have been introduced, in large part seedlings of American origin; and out of this vast number twenty-five varieties would be quite as many as are worthy of the Society's approval and encouragement.

Now, it would be unfair to state that this very large number found unworthy of cultivation have degenerated; doubtless many causes contributed to influence their rejection. Some were found poor growers; the fruit in many cases lacked the qualities essential in good pears; some seemed naturally predisposed to blight and other disease; and many seemed unsuited to the soil and climate.

But it appears although difficult to prove, in the case of some sorts once highly esteemed for general cultivation but now become degenerate, that the tree has already lived the time allotted by nature, and its production of fruit in its enfeebled condition is prolonged only by nursing or by engrafting on other and vigorous stocks. This suggestion opens quite another phase of the question, viz., How much can fruitage be prolonged by the process of engrafting or budding?

There was formerly an adage, "He who plants pears plants for his heirs," while now he who plants pears gathers a crop in a few years; and the trees mature, bear fruit, and die, even before the heirs are born. But it can easily be demonstrated that the

natural lives of the original sorts of pear trees have been longer than the joint or aggregate lives of several generations of men; and also that the product of fruit from an original stock can be artificially prolonged by engrafting to an undetermined extent.

The apple trees that were grown from seed planted by the early settlers, and cultivated as early as 1663, in many instances proved long lived, some reaching the age of two hundred or more years; these trees attained great size, and bore immense crops of natural fruit. I know of apple trees still bearing good crops that have every appearance of being one hundred and fifty years old; and I know of engrafted apple trees more than sixty years old that are still productive and unimpaired. On the other hand I can point to an orchard which was set forty-five years ago, and has received high cultivation, that has already become old and worthless, having no force to make healthy wood or bear fruit. And I read that apple orchards in some of the Northwestern States do not average more than twenty years in bearing.

The process of degeneration or decay of the apple seems to be less rapid than that of the pear; out of sixty varieties, mostly of American origin, grown fifty years ago, more than forty are now grown and esteemed. In fact I can recall but few sorts once extensively grown that are proving worthless; and in reviewing the history of the apple it must be admitted that it is not only the most valuable fruit in this section of the country, but also long lived, and is manifesting at present but few signs of decay.

The Early Harvest and the Newtown Pippin seem to be on the wane, and a few more are tending in that direction. On the other hand the Rhode Island Greening, known in cultivation for one hundred and fifty years, is seemingly as good as ever, both in tree and fruit; and promises to last for a long time. The Costard, one of the oldest apples grown in England, was recorded in the thirteenth century.

Among the fruits that were formerly plentiful the peach is the best demonstration of degenerating tendencies; it is the one that seems least able to withstand the departure from its normal condition occasioned by engrafting and modern usage, and the effects of climate.

In former years the peach was grown from the stone exclusively and engrafting was not practiced. Then the trees not only escaped disease but withstood the vicissitudes of the climate unim-

paired, and produced abundant crops; the ground under them, within the memory of many now present, used to be literally covered with luscious fruit at the season of ripening; while the life of a peach tree often extended to fifty years, and, by cutting back to the ground and allowing it to sprout from the root, to even a much longer period.

But when the nurseryman commenced to prolong the existence of improved varieties of fruit by budding not many years elapsed before the loss of original stamina and hardiness became apparent. Before long (in 1818) that destructive disease known as the "yellows" crept in. This was first noticed or described in print by a nurseryman in 1823; it was very soon ascertained to be contagious, and that the disease had come to stay. In the northern sections of the country peach growing, always precarious, now seems utterly ruined.

The question of actual degeneration seems fairly settled, in the peach tree; and the fruit follows the tree and varieties have become lost. Now the question naturally arises, Can the peach be restored? Evidently not until the budded trees are thoroughly extirpated, root and branch. We must resort to the custom of our ancestors, of growing trees from seeds, and these seeds should be procured from sources where disease is unknown in any form. Then we may hope with reasonable certainty for another period of healthy peach trees and luscious fruit.

Many sorts of peaches reproduce their like from the pit; these fixed strains should be encouraged, and painstaking cultivators might impregnate the blossoms of such with pollen of good sorts. By saving the stones of fruit thus produced they would materially increase their chances of success in producing new and desirable varieties.

The cherry and plum do not manifest a tendency to degenerate; they seem to suffer through injury from insect enemies rather than from any inherent morbid condition. The varieties grown by the earlier cultivators are still known and esteemed; manifesting, even under the influence of repeated engrafting and of artificial modes of cultivation, a decided tendency to long life. Cultural practices which seem to have impaired the longevity of the pear and peach apparently have little if any effect upon the cherry and plum; thus leaving the question of degeneration in these involved in considerable doubt.

Among the fruits termed "small fruits" the strawberry furnishes the clearest evidence as to its duration of life. Of this fruit, as nearly as I can recall, the kinds that have been cultivated thrive about thirty years; although there have been a few instances of longer duration, and some whose term has been shorter.

Of twenty sorts grown by nurserymen and advertised fifty years ago, not one is known in cultivation, if we except the Alpine, which seems to be perpetual; as does also the wild or native strawberry. Within the past forty years hundreds of varieties have been produced from seed, brought into notice, and are now gone to give place to new seedlings; and but few now extensively grown have been known to cultivation twenty years. Of fifty-one varieties grown in the nurseries of the late William R. Prince in 1839, not one remains. The strawberry reproduced from runners gradually becomes enfeebled and unproductive; and passes away, giving place to new and vigorous kinds raised from seed, which seems to be nature's mode of reproduction.

The raspberry, blackberry, and currant are long lived, and sorts that were grown as far back as the memory of man runneth are as good now as ever, conditions being equal. New seedlings are brought out from time to time, which, as novelties, have a tendency to supplant the older sorts, but the Antwerp, Franconia, Fastolff, Knevett's, and Northumberland raspberries, and a dozen others are just as good as ever. Neither do the blackberries or currants, when well grown, give much if any evidence of degeneration; when they fail it may fairly be attributed to the influence of poor soil and cultivation.

Vegetables, especially those annually grown from seed, cannot degenerate; seeds may become mixed and new sorts may be produced, but the annuals cannot be classed among plants that degenerate. Some seasons are found unfavorable to the development and growth of certain kinds; and new sorts are continually being introduced and tried.

The potato, indigenous to the mountainous sections of Mexico and South America only, is consequently, when cultivated here, far removed from its native home; and it affords us the best illustration of the importance of renewal by seed. As usually propagated from the tuber, it grows and thrives well for about twenty-five years, after which it manifests a very decided tendency to degenerate; and new seedlings are resorted to, which in their

turn will last a given time and produce good crops. Within my own experience, I have grown the Black Rusty Coat, Long Red, Chenango, Rohan, Peach Blow, Carter, Jackson White, Dover, Davis's Seedling, Kidney, State of Maine, Early Rose, and Hebron; and several other sorts — but only two of all these are now cultivated.

To attempt the inquiry into the growth, longevity, and decay of the fruits and vegetables we cultivate — to seek to learn the natural principles involved in the growth of each species, and the laws and principles of decay belonging to each, is particularly difficult where each seems to be governed by different and intricate forces, pertaining to its peculiar organism. Nature, with man's assistance, has produced fruits and vegetables in wonderful variety and profusion and of the highest excellence, and is still pressing onward; every season brings some new success in the line of fruit or vegetable raising, and notwithstanding there is so much mystery clouding the whole subject — so much that we should know but do not — so much guesswork, instead of positive information, and so much that seems impossible for the mind to understand peculiar to each plant — nevertheless it appears worth our while to discuss these questions, with the hope of new and increasing light pertaining to the philosophy and science of horticultural and pomological pursuits. There can be no end to horticultural investigations; and few if any conclusions in this hidden science can be considered final; and the subject we have been discussing still affords a wide field for inquiry.

The conclusions which I have been led to regard as provisionally established may be summarized as follows:

First. Each fruit-bearing tree and plant seems inherently endowed with a certain given period of life; this, however, is subject to be influenced by favorable and unfavorable conditions.

Second. Each species and variety of fruit-bearing tree and plant seems governed by conditions pertaining exclusively to its growth, maturity, and decay.

Third. Some fruits appear to degenerate, while others furnish but little evidence of deterioration; and the latter statement applies equally to vegetables, as a class, during this century.

Fourth. While there undoubtedly is a limit to the life of every plant and fruit, neither science nor philosophy has yet determined the data by which we can deduce with any degree of accuracy the duration of life of any of the larger fruits or vegetables.

The subject, as regards each fruit, seems to be governed by separate laws and conditions; and where such infinite variety exists, it renders equally limitless the extent of possible inquiry, and opens a wide field for experiments and experience; and also may be prolific in topics for discussion by the members of this Society.

Discussion.

Charles M. Hovey was called on by the Chair, and said that the subject had been treated by the essayist in a very able manner, and that it deserved the thought and attention of the members of the Society. That fruits degenerate we very well know, but whether from unfavorable climates or from other causes is not settled. The old varieties of peaches are still in perfection in England; within a week he had seen the Grosse Mignonne and George the Fourth recommended for cultivation as among the best varieties there. Of strawberries the Keens's Seedling, introduced in 1821, and the British Queen, originated about forty years ago, are still favorite varieties; though the latter is not suited to our climate. The Hovey's Seedling and the Boston Pine were raised by the speaker in 1833, and in his ground still give as good crops of fruit as ever. The Wilson, which has been more widely cultivated than any other variety, is still very good. We cannot raise the Flemish Beauty and Easter Beurre pears; they have degenerated here, but in California they are as fine as ever, and whether their degeneracy here is inherent in the variety is the question. Mr. Knight's opinion that every tree propagated from a seedling, being a part of that tree, perishes when the lifetime of the original tree expires, has been proved fallacious. The trouble is that the lifetime of one man, or even two, is too short to make reliable observations on this subject. Men must take it up in succession, if possible, but hitherto they have not done so, and the result is that we are continually beginning, and never come to any certain conclusions on the subject.

Grafting is undoubtedly sometimes injurious; the stock and scion do not seem to be congenial. Many varieties will not succeed on the quince stock; with the speaker the Glout Morceau and Angouleme flourish; and some of his trees have sent out roots from the pear, while others have not. He could see no degeneracy in pears except in a few varieties, such as the White Doyenne, Flemish Beauty, and Easter Beurre.

We can remember when we picked up the delicious peaches under the trees, but we do not remember how many seasons there were when the crop failed. He had been out among his peach trees and shaken them when the fruit almost seemed to fall into his mouth; for six or eight years he got a crop one year out of two. He had read much on this subject and had been a pretty careful observer, and had come to the conclusion that to explain degeneracy we must not look for causes inherent in the variety, though perhaps this may exist to a certain extent in some, but to other causes, climatic or residing in the soil.

To the question whether grafted trees ever go back to inferior varieties he answered, no. He felt doubtful as to the influence of the stock on the graft but he admitted the existence of sports. The Lewis, one of our native fruits described in the "New England Farmer" many years ago by Samuel Downer, Senior, is a very nice pear but too small and green, and he grafted a tree of that variety with Bosc. Afterward he noticed on another Bosc tree some small green pears growing on a graft; which some persons might have accounted for by the influence of the stock, but inquiry showed that the grafts used on this tree had been taken from the first mentioned Bosc tree, and some had been carelessly cut from Lewis suckers below the graft.

William H. Hills of Plaistow, N. H., said that the topic under discussion was exceedingly interesting. He had made many observations in regard to it. Some think that the Rose potato has degenerated, but we get them from Aroostook county, Maine, as fine as ever. When it was introduced he bought two pounds and from that quantity he raised two hundred and forty pounds. He cultivated them like others, with a light dressing of manure over the surface, except that for the Rose he added a handful of superphosphate in each hill, and he thought he could get as good results today. Sports are difficult to account for; on the Mayduke cherry trees there are every year branches where the fruit is from ten to fourteen days later than on the rest of the tree. There are certain conditions that we cannot understand. Last year he felt some alarm lest the Baldwin apple was degenerating; his were small, but he found they were as large as anyone's. His early apples were as large as ever, and his Russets never were finer. Something that we could not perceive had affected the Baldwins. It frequently happens that something which we cannot account for injures a crop.

Disease is distinct from degeneration. The Flemish Beauty pear cracks; is this degeneration or disease? He notices the cracking of apples more every year; the wound seems to heal inside and they seem to recover, but the fruit is still worthless; he thought this was disease but could not tell what produced it.

The fruit of the Baldwin apple trees that were on his land when he bought it is different from that produced by the trees he has planted. There is no fixed type of this apple, but in propagating he has always taken his grafts from trees bearing yellow fleshed fruit. A grape vine climbed into one of his best Baldwin apple trees and ruined the fruit by causing it to mildew, but he has cut away the vine and expects the fruit to recuperate. The modes of cultivation and peculiarities of the seasons are continually affecting fruit. Of sixty or seventy varieties of small fruits described a few years ago only four are in cultivation now.

E. W. Wood said that the question of degeneration had been much discussed, but no one could deny the fact, whether he attributed it to disease or other causes, He thought the essayist's comparison of vegetable with animal life might have been carried further. Man adapts himself to changes of climate by changes of clothing, and if we could do the same by trees we might be sure of good crops everywhere and in every season. Cultivation under glass effects this result, and hence peaches in houses retain their health and produce regular crops. He did not agree with Mr. Hovey in regard to the peach, but thought we cannot cultivate it as formerly. His recollection is that for a series of twenty years the crops were as regular as those of pears are now, or those of apples every two years, but if we attempt to cultivate the same varieties today we find a marked difference. He felt sure that plants do suffer from continued propagation by grafts or cuttings; he has grown remarkably strong verbena plants from seed, but they soon ran out when propagated by cuttings.

The Hovey strawberry was perhaps more generally grown in New England than any other variety thirty or forty years ago, and there is no better kind now if we could grow it, but we cannot. Mr. Hovey's own specimens are not up to the standard of twenty-five years ago. In later years the Wilson has been more generally grown than any other kind, but it is now being discarded.

Mr. Hovey said that he had seen Crawford peaches sold for a dollar and a half per dozen, and he had seen a basket full sold for

the same money. In 1807 Judge Peters said he had an orchard of two hundred peach trees, and he complained that they were subject to disease and decay; and that for forty years they had been short lived. This was near Philadelphia. Further south and in the western country and in some parts of New Jersey, they were durable and productive, as they had formerly been with him. The subject before the meeting is not degeneration in Massachusetts, but everywhere, and it should be remembered that this is not the native climate of the peach. The varieties are as perfect as ever.

Dr. Van Mons's theory of producing improved varieties of fruit was by beginning with the wild species and sowing the seed through successive generations; but any one would be called crazy now who should begin with the wild *Fragaria Virginiana* to improve the strawberry. He asserted that after several generations as good apples could be got from seed as by grafting. But the Seckel, Sheldon, Fulton, and all other fine native pears have come from cultivated varieties. There may be degeneration of culture; and we should be very cautious in attributing its effects to the degeneration of varieties.

Mr. Hadwen said that the fact of degeneration is not changed because we can point to some of its causes; but what has become of the old varieties? We cannot tell how long varieties can be made to exist; we may graft on vigorous stocks but even then the period of existence of varieties is unknown.

William C. Strong objected to the term "degeneration;" he would say "liability to disease;" the instances quoted seem to militate against the use of the former word. The Flemish Beauty pear has not degenerated. In some sections as fine specimens of this variety are still produced as were ever seen. So also in some sections of the country the peach is as vigorous as ever; so is the Keens's Seedling strawberry in England. Trees are sometimes invigorated by grafting on stronger stocks; the magnolia is an instance. The question is whether the tree has become more exposed to disease than it once was. The cracking of the White Doyenne pear may be caused by the soil having become exhausted of some element or elements necessary for its perfection.

Mrs. H. L. T. Wolcott asked, Could not the same Power which has limited the life of man to threescore years and ten have limited the life of trees also? Fruits and flowers certainly have gone out of date. There may be a consciousness of old age on their part.

Mr. Hovey said that the Creator has endowed plants with the power of perpetuation by grafting, which he has not given to animals. The camellia was introduced two hundred years ago, and the Old White camellia is the same as ever. Varieties do continue; the Windsor pear is still good in England, though nearly two hundred years old, and there is a tree of the old Summer Bon Chretien at Mount Auburn as good as ever.

George Hill said that he had cultivated hundreds of varieties of strawberries and they have always degenerated and gone by, until now he cultivates only one variety, the Sharpless. Tomatoes also have run out; the plants would blast. As good plants as he could raise of the Boston Market tomato have blasted; the newer varieties are less subject to this disease. Hybrid vegetables will degenerate unless they are carefully cultivated, and the seed is carefully selected; and this tendency seems to be much stronger than the tendency to improve. Old seed is better than new which has been allowed to run back.

Mr. Strong thought the deterioration of vegetables propagated by seed might be due to close fertilization. What Mr. Hill had said about the Boston Market tomato suggested this point. Darwin's view was that cross-fertilization always gave the strongest plants. The effects of this method of propagation should not be confounded with those of grafting and budding.

Mr. Hills said that many of our improved varieties are more tender than the old ones, but the old varieties, once so highly prized, would not taste so good now as they did when we had no better. The further we get from a state of nature the tenderer they seem to become. We have a cultivated class of children as compared with those in the alleys of our large cities; are the former degenerated? It is the same with cows; the improved breeds are more tender, but they are not running out. Grafting on seedling stocks is surely changing varieties, though not perceptibly in one year.

The Chairman of the Committee on Discussions announced that on the next Saturday Miss Sara J. Smith, of Hartford, Conn., would read a paper on "Horticultural Education for Women."

BUSINESS MEETING.

SATURDAY, January 29, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

The President, as Chairman of the Executive Committee, reported a recommendation that the Committee of Arrangements be authorized to employ experts to assist the various Standing Committees in the award of prizes at such exhibitions as to the Committee of Arrangements may seem expedient — this subject having been referred to the Executive Committee at the meeting on the 1st of January. The report was accepted and the recommendation was adopted.

President WALCOTT also reported from the same Committee a recommendation that the President be authorized to employ counsel to further the carrying out of the vote of the Society, passed December 4, 1886, concerning the securing of a site for a building for the Society in the Public Garden. This report also was accepted and the recommendation was adopted.

Adjourned to Saturday, February 5.

MEETING FOR DISCUSSION.

HORTICULTURAL EDUCATION FOR WOMEN.

By MISS SARA J. SMITH, Hartford, Ct.

To this Society, meeting to learn from each other and to discuss the best methods of improving our homes, our lands, our fruits, and our flowers, culling year after year from the wisdom of scientists and thinkers, and from the experience of practical workers, then publishing and spreading world-wide the knowledge thus gained — to such a Society as this it can be no marvel that the seed thus sown broadcast has taken root in the public mind, and from it has arisen a hope that, in the great educational revolutions now progressing around us, this question of a good horticultural education for our young women may find its solution, and bring forth fruit for generations to come.

From all over the land we hear rising a cry for some different, some more healthful training, physical and moral, than many of our girls are receiving — than that given in our higher public schools. Still no one as yet seems to know what this new educacation must be.

More and more is being crowded into the curriculum of study; nothing is taken out. Children are gathered earlier and earlier into the school fold — a fact telling plainly that there are mothers who feel themselves unequal to meet the demand of the times. Young girls graduating with the classes of boys prepared for Harvard and Yale are hurried into Vassar or Wellesley, or some other college for girls, for the so-called higher learning, and then too many of them are launched, with overtaxed minds and bodies, into society.

Is not this one cause of the "nervous prostration," so baffling to physicians, so ruinous to all home comfort, so disastrous to the future of husband and children; and of which we hear so frequently as an excuse for the inefficiency of the mothers — the fashionable mothers — of our times?

Here, in Boston, where there is no lack of interest in all that pertains to knowledge and culture, and where the public schools lead the schools of our country, it hardly seems worth while for one coming from outside of the State to speak of education; but perhaps this is the reflecting of the light you have thrown upon us, and we would still learn of you, that we may throw this light yet further on.

We all know of the kindergartens, and of the sewing, the cooking, and the night schools; also of the demand for trades schools. These are ostensibly for the poor, whom we shall always have with us, and more especially for a class of poor whose hours of school instruction are few, whose brains are not overtaxed with out-of-school study, whose bodies are strengthened by coarse food and work, and whose hands are put to use for support at an age when the pressure upon the brain begins with those whom they consider their more fortunate brothers and sisters.

The kindergarten is a part of the whole public school system now, and works well for the poor and rich alike. We have become almost Spartan in giving our children to the public for training. But schools of housekeeping or schools of horticulture cannot be grafted upon our public system to any advantage. They would prove but expensive and superficial appendages if they were.

We have all "been to school"— did we not find that our reading, writing, arithmetic, geography, drawing, music, grammar, and history, to say nothing of the spelling, were as much as we were able to compass before entering our teens? Did we have any too much time for playing, and growing — and idly dreaming between whiles, as growing children should to grow heavenward? Let us leave some time for this growing and playing and dreaming to the children of today. Let the crowding come late (if it must come at all); and let the schools for manual training for trades be separate schools. This seems desirable for two reasons:

First — Because children expecting to work at trades will work with ambition and love for their work, and compete more zealously with each other, in those schools, if not brought in contact with other children who are not expecting to do such work, and who being without incentive are doing nothing well.

Second — Because, having regard to the shortness of life and the vastness of work, the children wishing to be put at trades schools should be incited to enter them at an earlier age than would be best for those from whom more book study is to be required.

But it is not to discuss the training of young children that this paper is written; it is rather for the guidance of those who have passed through the halls of the public schools, and now stand looking out into the world with eager, longing eyes, and questioning, "What shall be next?"

To one who has studied the subject thoughtfully for years, as a practical educator, this question arises: Are there not still untrodden paths in the gardens and fields, enclosed by barriers stronger than stone walls, which should be, and could be, opened to the light tread of the wives and daughters of the land — fields lying fallow from the ignorance of the mothers and daughters, and barred in by the prejudice and indifference of the fathers?

Do you ever, when walking in your beautiful gardens, think of the many New England farms and homes without gardens? And do you ever reflect that there are daughters to inherit those places who are not taught each day, as your own daughters may be, by the beauties around them, and are not aided by your love and knowledge of these beauties to know and love them?

But, though we know these daughters have been, and still are, ignorant of the possibilities of what lies around them in their

homes, outside of their houses, we know also that from these farms have come more than half of the leading minds among the men of our country; men who loved their work and did not shirk; men whose bodies grew strong and wiry with out-of-door labor from their early boyhood, and whose minds were developed, not from a culture freely offered them, but in spite of the poverty of their opportunity, and who were strengthened by the very effort they had to make to allow no chance for learning to go by, no moment of leisure to be an idle one.

From bookless and indigent homes of the past we see emerging long lines of scholars, who by the very sweat of the brow earned their bodily support while gathering the knowledge for the brain. We glory in these boys, these men; we look with pride at their brilliant course in the world, and point to their cultured—perhaps elegant — homes, and contrast them with the homes they left. What a contrast in these cultured homes to those their mothers toiled and toiled in, without thought or comprehension of the beautiful things around their own doors that might and should have brought them recreation, and where these mothers died perchance from toil, that they, these men of letters, might be enabled to win the world.

When the career of such a one is remarked on, we know only the brilliant man — we little heed that mother; and yet these toiling mothers are, all over the land, dropping into silent graves, overtaxed, God knows; and another house-mother (how beautiful in its meaning is this word from the German — not solely the mother of the babe, or the child, but the mother of all under the roof-tree, if she be a true mother) another of these toiling house-mothers takes the place of the first; and then sometimes another still. It is a tradition that many of the beautiful farms among your Berkshire hills have been made beautiful and rich at the expense of the first, and second, and oftentimes the third wife's life. And why? Man toils from early dawn till dewy eve, but then may take a nap, or smoke his pipe and read his papers. Woman toils from earlier dawn — she makes the fire on many a farm — till dewy eve, then takes her needle and mends and makes the household clothes, till midnight, oft. Her rest, when found, is in the grave. Nature herself attempts no more; for after the budding of spring, the flowering of summer, the fruitage of autumn, winter's white shroud wraps her in her sleep of rest. Why toil these

mothers so? Where are their many daughters? Search through the land, and we shall find them fleeing here and there, preferring to seek life's toils and pleasures away from their homes. Why do these daughters flee from their homes? Have they been rightly educated — educated for their home life?

If we may believe the stories we hear of the olden time, the time of the spinning wheel and quilting frame, the daughters did not then, as now, leave their homes; else how had there been those chests of linen, those piles of bed-quilts, those blankets and sheets, all spun and woven and made, and laid away with "sweet marjoram and lavender," to await the marriage day and the journey to the new home, then the almost only going away of the young daughter. The remnants of such collections — tokens of the thrift and happy labor of those days — are precious heirlooms in many a family now. The dear old great-grandmother's blankets and quilts, the chests of yellow linen,—how carefully we cherish them; for the days are long gone by when love and duty created them. Who knows whether days like those can ever come again? Our girls, in their homes of today, can have no call for such work, and machinery, man's invention, has taken all this work from woman's home and hands, and left nothing, absolutely nothing, to fill its place.

What, now, can be given to them instead? Is all being done for them then that ought to be done — all that can be? Should not some new avenue be opened for the minds as well as hands of these girls — these daughters? They see the work around them — who teaches them that they could make it lighter and convert it into a pleasure? They feel the want around them — who shows them that there need not be want and privation in their homes? They contrast the little they have with the luxury which their father's work carries to the homes of others, and they wonder, these bright-eyed, irresponsible girls, and flee from a life that seems dark and hard; but they flee to a world that is dangerous, and harder.

Let us look at these girls at a later period. They have been hurrying through school, only to be free; and then aimlessly striving to support themselves away from home; turning to teaching, if soft-hearted committees will let them experiment in district schools; if not, then turning to the next best thing which seems to them exciting; probably the shop or the factory.

Is it not apparent that excitement is the demand of the young people of this age; excitement in life, excitement in literature, excitement in religion? Sad evidence of a wrong!

True, we need girls in these shops and factories; and there are in fact thousands of good, modest girls going out to toil in these places every day; girls with homes and friends and others without them; girls, too, who support themselves well, and take care of whole families besides. But there are enough, yes, far more than enough, who are compelled to crowd to these shops and factories to earn their daily bread — good, honest, hard-working girls and women, working faithfully in the places God has given them, and these would be better paid were it not for those other girls who crowd into their ranks, doing this not because they have no homes and must — but — to get away from their homes!

There is no reason why these employments should be sought by farmers' daughters, but every reason why they should not. These unsettled, unhappy girls are crowding in where they ought not — ought not because God has placed them where they would be better women to remain.

Can it be that there is in the education of the day, and perhaps also in the reading of the day, something that unsettles this class of girls, and tempts them from their homes; that causes them to long for excitement and crowds; that makes them bold and independent at an age when they should be retiring and yielding? Is not the tendency of the public schools, with co-education of the sexes, towards this public life, especially when brought to bear upon girls whose previous education has been in the quiet country district school?

Notice, when on an early morning railway train going into any of our northern cities, the number of girls and boys carried in to attend the large public schools. Day after day they go, perhaps for four years, wasting hours of that time in depots, or lounging in places far from home or school, when the trains are not conveniently arranged to suit school hours; making friends where they ought not; joking with railroad officials or other chance acquaintances; at first, simple, truthful, honest girls, who see no harm in it, knowing nothing, fearing nothing, but growing freer, bolder, day by day. Here and there are girls who will not be hurt by it; faithful, modest girls, who may be trusted to the world's end. It is not for these we fear, but for the sake of others we should

ask — Towards what does this all tend? Is it right and wise to put a girl into the midst of such temptation, and then expect her to be other than she too often becomes?

School days over, the excitement of graduation, the crowded house, the applause, all are ended, never to return — no more city life, no more railroad rides, no more excitement. A quiet coming home, and to a home which perchance may not be that home of beauty, of luxury and comfort and pleasure, to which it would be the good fortune of many of you to welcome your daughters, but a home such as we know hundreds of our brothers have on these bleak though beautiful hills, and damp though smiling valleys of our own New England. And most of them being totally ignorant of what might make such homes a pleasure, it seems to them a coming down to a mere round of cooking, and cleaning, and small economies that fret day by day. What a dull routine! How hard a one to be borne! Seldom company to enlighten; no money except for the barest essentials — only a weary, dreary home! The mother tired, the father silent, a brother absent, perhaps, or worse, indifferent. Work that is always pressing, no luxuries, no garden — even the songs of the birds serve but to recall the songsters of the city park, and to make her feel gloomy. And so comes the sad final break with home.

In all the routine of culture of soil and fruit and flowers and flocks, is there no pleasant place for these girls to step into, no welcome duty for these daughters' hands? Is there no way of showing them that they too have a mission, a heaven-given mission, on a farm?

It was settled some time ago that agricultural schools and colleges are quite as essential to train boys for agricultural life, as are other schools and colleges to train boys for other paths in life. Is it not time to conclude that there must be schools to train girls to home-life? And training them to home-life does not mean making them household drudges, but girls with healthy minds and bodies, loving nature and humanity, and with hands and hearts calmly, strengthfully, sweetly, prayerfully bearing the daily burden in a way that makes it no burden, but a God-given duty thoroughly understood — such girls will never be household drudges.

Our girls can be and ought to be taught to be better providers for comfort, better bread-makers, better home-keepers; but also, as home is not all within the house, they should be taught to under-

stand the garden, both as to fruits and flowers, and no less the poultry yard, the apiary, and even the sheep-fold; for attendance on these would be a kindly, womanly work for woman; and all the animate dumb creations of Heaven should welcome her steps.

Excepting that leading to the cultivation of the land, every avenue in life now seems broadly opening to woman. The liberal professions are becoming more and more accessible to her, through the enlightenment of public opinion, inclining to justice, and partially giving her a chance to do what she will do, if she may. Yet it is with much difficulty that she gains a foothold in them, and the jostling of her brothers is rougher than she likes. Crowded avenues they all are; though in the higher rounds of labor, and in the ranks of the brain-workers, there is always room for more; and where there is great talent, if there be given a certain amount of education, the talent will effectively develop itself.

There are young women whose souls are wrapt in study; who have genius, and who aim to be teachers of high degree, and artists, and doctors; yes, and lawyers. There is no difficulty in finding the educational training for these; the high schools and colleges, the art schools and museums, offer it freely. And there are women who would delight to wear the student's cap and gown, and are begging to be admitted with their brothers to Harvard and Yale. But, really, those fitted for such careers are few and far between. We hear only of the successful ones; many, many of the woman brain-workers have failed in these higher undertakings. When it became necessary that they should win a support by their learning perhaps they found the talent had been wanting — and no amount of education can make a genius — or the work was too masculine, or not womanly enough; and, unless driven by dire necessity, a cultured woman shrinks from the great push for places. And, alas! often she shrinks also from great responsibilities, or from paths not sanctioned by the schools and by the opinion of the public.

The woman who owns a farm and carries it on does it shyly, and as if she had no right to do it; and the girl who is quite at home in her father's conservatories and hot-houses, understanding the culture and knowing the botanical names of all the plants, is a wonder to her companions, and seems not quite one of them. Yet, how many a weary, heart-sick girl whose whole life has been spent amidst brick walls longs for a work in the green fields.

How many a woman who breathes the close air of the factory until the hectic flush tells of a life almost spent wishes she could have been taught a work that should bring her daily nearer to nature.

This work is one that she dare not, cannot, learn by herself, the risks are so great. She can catch up the broken threads in the loom, and scarce gives them a thought; the great machine seems to her to work of itself. But the tender plants, the opening buds, the flowers, the bees, the soft little chickens — how dare she, untaught, handle these mysterious things direct from heaven? Might she not chance to put out some of this life given to cheer and brighten the world? And she looks with feelings of wonder and shame at girls who inherit the right, the opportunity, to know something of all this, yet flee from it in their ignorant contempt of it.

What a cry of dismay is heard at a proposition to send a girl from home to learn house-keeping! and to talk of sending the daughters of farmers away from their homes to study horticulture may seem at the present time rank heresy; but this must soon come, like all other things for the good of man.

Seldom do we find the merchant, the doctor, the lawyer, attempting to train their own sons to enter their own lines of life; they send them to some one else for that training; and we also find the agriculturist sending his sons to schools and colleges affording scientific agricultural training. Then why may not his daughter in like manner be sent where she may obtain a scientific training in horticulture? And would it not be well sometimes to send her away for training in house-keeping? She *should* be taught that duty at home. But is the daughter always so taught at home? How hard it is to teach an unwilling daughter! How much easier it is for the mother to do it all herself! There are duties for every daughter that she does not usually incline to learn; indeed it is doubtful if any mortal inclines to duty as freely as ducks go to water.

How carefully considered is our selection of the seed and the scion; how careful is our training of the colts and the steers; but how like a weed in the fields, too often, grows the daughter of the house! And then how unfitted she will be to take a place in the great world of work. And if it is as an orphan she must enter there, with land as her inheritance, and little else but her land and

her natural love of the beautiful, how shall she shape her course, and what is she to do? What is that land to her, incapable and ignorant of its probabilities and possibilities? Where shall she turn? Who will show her what to do? Is there not some one who will strive to provide an opportunity for the right training of such young women in home-life and horticulture? Has this Horticultural Society of Massachusetts a school to take this ignorant little woman in, and teach her to be happy in her land — her inherited possession? No!

What have the public schools given her? A disciplined mind, a clear, quick acting brain; some knowledge of mathematics, and probably of Latin and Greek; and a slight acquaintance with natural science. God has given her a home and land, but all her school knowledge avails her but little towards caring for them; excepting the possibility that she knows how to survey her land, and cut it up for sale.

We are placed in this world not only for our own selves, but to do good to all within our reach, and is there not a noble work yet remaining to be done by this Society? From all its knowledge of plants and how to make them grow; of flowers and all their wonders; of fruits and vegetables and their uses; can it not tell, and show the world of woman, how she can make the garden her kingdom; the poultry and bees her subjects; and be healthy and happy in their culture and care?

Does not this world-wide cry for a "new education" come to rouse the lovers of horticulture, and to tell them that while they are surrounding themselves with all the beauties of the floral and vegetable kingdom, gathered from the far corners of the earth; while they are lavish in all that shall perfect these wonders of nature, there is a great world outside, looking longingly and lovingly on, and wishing for a slight foothold within the charmed circle; and still another, a world of indifferent young girls, who need just the knowledge this Society can give them.

And yet, how is this knowledge to be given them? The world stands wondering what the new education is to be. You hold in your power one branch of it, the horticultural. Give us a school that shall educate young women first in humanity; next teach them of Nature, to love and understand her; then teach them of the human care they should give to the inhuman they find around them; and, especially, teach them that to work is a heaven-given privilege.

Until recently labor has been growing less and less respectable since our great-grandfathers' days. A great artist* has lately said, "It is the curse of the age that young people wish to jump into maturity at a bound, and that the desire is not to do, but to 'get done'; to deal in the article, not to make. Respectability has cursed this age in this country — a craftsman is not supposed to be a gentleman."

This was said on English soil, but it applies as well here. Much of this perverted feeling, it is to be feared, is due to our public schools, but surely it is much more a result of the vast and sudden fortunes made since the days of our civil war. Those great and sudden fortunes, too often gained by trickery and knavery and spent in selfish luxury, have done much to demoralize our nation.

But a revulsion is taking place. Absconding knaves cannot be the nation's heroes, and selfish capitalists are looked upon with less of admiring reverence. Work is again becoming respectable. Work is ennobling. Our Lord saith, "My Father worketh hitherto, and I work." As a nation, we are beginning to realize that the noble faculties given us are meant for use; and that men and women who labor with their hands, guided by their brains (for it is cultured handcraft that this nation will have), stand on the same plane of opportunity with the men of learning and the men of money; for such men and women can be what they will.

It is just half a century since Mary Lyon struggled faithfully and successfully to found a school in this, her State, in the midst of an agricultural country — a school that should give to the daughters of farmers and others advantages in learning which they had not before enjoyed. To make the expenses small the girls were expected to do the house work, under competent supervision, and many a city father sent his daughter there to obtain a knowledge of house-keeping which she could not, or did not, receive at home. The fame of this "Mount Holyoke Seminary" spread far and wide, and for many years it was a shining light in the midst of darkness.

Since that day colleges and schools have sprung up all over the land; and the Temple of Learning which was pictured on the first page of the old Webster's Spelling Book and which to the childish

* Herkimer.

mind seemed a temple in the heavens, now crowns many and many a hill-top, calling our youth to its halls; and the way thereto, by comparison, is now a flowery one, but it is also one that consumes the freshness of youth, and leads from home.

That simple school, for which Mary Lyon toiled so long and well — that school, too, has kept up with the onward march of learning. Girls no longer go there to learn house-keeping. They go to learn to be teachers, and the curriculum of study is arranged for the "higher education," and designed to make learned women.

What we need to provide now is not this higher education; it is a new and different one; an education in horticulture and home-culture, that shall make a happier girlhood — happier, because hands are full and bodies healthy; happier, because brains are less strained for book lore, and more alive to nature's truths, and vivified with a practical knowledge of what goes to make health, happiness, home, and wealth. Among all the schools of our land — and their name is legion — there is not one to offer this to our girls. Is not now the time to make one that shall meet this requirement? Is it not to this Society — the Horticultural Society *par excellence* of the country — that we may look, to show us how this horticultural education can be given? You who know so well the difficulties that beset the way, and have shown us that they are not insurmountable for woman, show us still further, that we may not make our horticultural training one-sided, but that in teaching how to care for and beautify the land, we may also teach the little woman to care for and render cheerful, healthful, and happy her home and all its surroundings.

And if this education must — as it now seems in very many cases that it must — be obtained elsewhere than at her home, may she then go back to her home, however humble it be, as a ray of sunshine; a faithful, loving, capable daughter, there to remain till some one shall win her away to be the light of a new home.

Discussion.

Mrs. Ednah D. Cheney was called on by the Chair, and said that the meeting recalled to her mind the one held under the auspices of this Society and in this very room, with the venerable Ex-President Wilder present, for the purpose of promoting the horticultural education of women. It was then hoped that the

Society might take such a school directly under its auspices. The meeting referred to resulted in the establishment, by private subscription, for very much the same reasons as had been suggested by the essayist, of a horticultural school for women. An estate was hired in Newton, and Mr. Charles Barnard was appointed principal of the school. The greatest lack of the school was pupils, the largest number at any time being twelve, although the school had a fund of $5,000 to give assistance to those who needed. The same difficulty has been found in obtaining pupils for horticultural schools for boys, and indeed at all industrial schools; and here the further disadvantage was felt of its being a new thing. The school was not made too public lest it should attract those who had no earnest purpose. One of the pupils afterwards had a greenhouse in Brookline. Last year the trust was given up, and the funds were transferred by authority of the Legislature to the Institute of Technology to found the Joy Scholarship for women, the income going to help needy girls who study there. The speaker considered that the time had not arrived for special horticultural schools, but that they must be preceded by a general training in science. When the Bussey Institution was opened, with classes in horticulture for both sexes, this school was closed. Every effort was made to induce young women to attend, but it met with very little success. Neither do young men come to the Bussey Institution; there are now only three pupils there. A few ladies who wished to learn about the culture of house plants have attended the lectures. Under these circumstances the Directors of the School of Horticulture for Women did not think it best to appeal to the Legislature or the public for further funds, and as before mentioned the school was closed. The committee having charge of the fund had very little opportunity to expend the income in aiding pupils at the Bussey Institution, as no one applied for entrance there. Professor Watson said that a boy would not be much more valuable in a greenhouse for having attended the Bussey School.

Leverett M. Chase, Master of the Dudley School, District of Roxbury, considered the subject one of the most important discussed by the Society. In his long and wide experience he had become acquainted with a multitude of mothers, and he was filled with anxiety as he saw so many living in a kind of social bondage—a life almost purely artificial and useless. With very many, rubies

are better than wisdom, and it is better to dwell in the tents of wickedness than to be a "doorkeeper in the house of the Lord."

To meet the demands of fashion, children are sacrificed, health destroyed, homes made wretched, useful knowledge neglected; in short, all that tends to the highest physical, moral, and mental development is almost ignored. The dominant tendency of city life is to make poor wives and mothers, and it is axiomatic that without good wives and mothers there cannot be happy homes; and thus the public virtue is sapped and eventually destroyed.

Most of the avenues of self-supporting labor are closed by the edict of Mrs. Grundy. Many women drag out a hand-to-mouth existence in some employment called genteel, and are sore beset by the temptation to accept the friendship and help of those enormous brutes that lie in wait, devoting their time and energies and finding their highest enjoyment in destroying those unfortunates whose environments or whose lack of resisting power render them victims to a fate far worse than immediate death.

The present style of living in our cities and suburban towns is so costly as to preclude marriage, in many cases; an evil prolific in most serious results. He had long felt that woman has a great work and opportunity in floriculture and horticulture; a work that will afford excellent remuneration and is altogether better than many occupations now over thronged with working women. In the West, where customs and prejudices are less inveterate than in the East, women have achieved great successes as keepers of greenhouses, cultivators of small fruits, poulterers, vineyardists, and in many other fields of labor peculiarly adapted to their capacity. When in California a few years ago, the speaker visited the Fresno raisin vineyards, many of them owned and cultivated by women who had entered upon this work in poor health but had found health, competence, and happiness in this delightful occupation. In several cases he found women whose net profits were more than two thousand dollars per annum.

He would be glad to see thousands of our women, now barely able to earn enough to keep soul and body together, whose only earthly future is incessant toil unsweetened by hope, unrelieved by even a sight of the "divine face of mother Nature," delivered from the house of bondage and "go forth under the open sky."

Mrs. H. L. T. Wolcott had thought this Society ought to do more for children by offering prizes for flowers grown by them.

When she worked in her own greenhouse her gardener said that all women were not like her; his wife could not do what the speaker did. Florists do not even educate their own children to follow their business. Agricultural colleges come in contact with the farmers, and their daughters might be benefited by attending them. In the freer western part of our country they are doing more for the education of women in agriculture than here. At the Iowa Agricultural College the girls are trained in a regular course of domestic economy; each girl has to be one of a class who for three months at a time do all the house work of the institution under the direction of the matron. They are also taught the regular course of study in botany, chemistry, etc. While the speaker felt the great importance of such an education she did not believe we can do much toward promoting it in this State, unless we can appeal to the Agricultural College to undertake it. The tendency here is to place girls where they can bring in cash wages as soon as possible.

Rev. A. B. Muzzey had hoped we should hear more from the ladies. He was surprised to see so many sharp lines between the work of man and woman, and glad to see the waves washing them away. In Eden Adam and Eve worked together, but somehow they are parted now. The theory of the essay is good, and he hoped something would come of it practically. Almost every one in this room believes there is something radically wrong in the education of young women. Marriage has been considered a matter of course, and the question has been what could be done meanwhile. Our school committees are besieged by the daughters of farmers and others who desire positions as teachers. What is the cause? Formerly farmers' daughters engaged in domestic labor, and the change and loss has been brought about by a false conception of the dignity of labor. It was thought that the foreign population came in very well as substitutes for the daughters of the house in domestic duties. The idea that labor is degrading is anti-Christian and anti-republican. There is a dignity in labor; and until the community is educated to recognize this fact it will be fruitless to open the doors of the Bussey Institution and similar schools and expect students. He was rejoiced to hear the essay, which was conceived in a broad, true, and liberal spirit. There is nothing degrading in labor; on the contrary it is elevating. But it is of no use to establish schools faster than you can find pupils to fill them.

William C. Strong said he felt jealous for the reputation of this Society. The burden of providing horticultural education for women seemed to be laid upon it by the essayist, and one of the speakers had gone further and passed a criticism on the Society for neglecting it. Many of the lady members of this Society are engaged in floriculture, and are on an equality with others, and what more can we do? The agricultural college itself is but an experiment, and it is doubtful whether a special school of horticulture would be wise, particularly if confined to women. All present would agree with those who had expressed such noble sentiments in regard to labor.

Miss Smith said the mistake had been made that girls in studying horticulture had looked forward to making money by gardening. The school of horticulture should be combined with a school for home culture. She had found many large farms without gardens or poultry, and the daughters away. They could certainly be taught to care for poultry.

Mrs. Cheney thought making money the most important point of all to make women's work practical and not amateurish or superficial. Painters do not consider themselves entitled to be called artists until they can sell a picture. Girls must either earn money themselves or spend money earned by some one else. She knew a family in Vermont where the father is breaking down and there is an invalid girl. There are two other daughters who thought that if they could take hold on the farm they might keep the family together, but they are considering the choice between that and going into a store. If they had begun to consider that question ten years ago they might be ready to meet it now.

Edward L. Beard said that behind the question under discussion is a lack of a general knowledge and love of horticulture. We need not go far away to find a complete ignorance of the subject. We must build on the broader base of an effort to supply this deficiency. This Society has an opportunity to do much for the cultivation of a taste for horticulture. If we could put into all our towns and villages local horticultural societies to cultivate the taste of the communities it would be a great help. Without this practical horticultural knowledge, horticultural schools for women will be of little benefit. If this Society should formulate some such effort in ten years we should see the effect.

Mrs. Wolcott spoke of the effort made in 1878 to encourage

window gardening among children. The money for prizes and other expenses was contributed by a generous lady. The churches were called on to give plants on Easter Sunday for this purpose, instead of flowers; and plants were procured from other sources. All that was asked of the Society was a little start in the experiment. Exhibitions were held in the hall through the summer, and those who had initiated and watched over the movement felt much encouraged by the interest manifested. It was hoped that it might be continued by the Society, but this hope was not realized. The specimens shown by the children were not as good as those that usually grace our tables, and perhaps some of the members feared that the plants might be attributed to them.

The Secretary stated that the reason why the Society did not do what was hoped for in this direction was that at that time the financial situation would not admit of it.

Mrs. E. M. Gill thought mothers lacked energy in training their children to work, and were to blame for not giving them more sensible ideas of life and its duties. They lack the love and the will for work. She has two daughters who are now teachers but when at home they do the house work. She became a member of the Society in 1865, and has been absent hardly a Saturday since that time, and has had her share of the prizes. She enjoys her horticultural work and the money it brings. She can go to ride with her own horse, and feed him, and wash the carriage. She did not think many men, if they employed women in their greenhouses, would insist on their working until midnight.

C. M. Hovey said the object advocated in the essay is one which the Society ought to do all it can to promote, though perhaps it will be difficult for it to do anything directly. He had himself done much for this object indirectly, contributing to the exhibitions of the Society in its early days more than now when the prizes are large. He remarked on the small number of young men to be seen at our meetings, and hoped to see more of them. After all that has been said we come back to the simple fact that girls do not like to work in the garden any more than they do in the house. He feared that false ideas of respectability would long interfere with making garden work popular with women. In Philadelphia women are employed in greenhouses much more than here. While in France he visited a florist friend, and after dinner a man brought in a pan of plants and they sat conversing for two hours, the lady

of the house being all the time engaged in pricking out these little plants. There is a good deal of hard work in out door gardening; and our climate is rather severe for women to endure labor out-doors; it is very hot in summer and very cold in winter, and one must be rugged to thrive working out-doors in it. Many of the hands employed in a garden, whether men or women, must be discharged in autumn. He had found it hard to get girls to pick strawberries; but he knew one lady, now the wife of a wealthy gentleman, who received the first money she ever earned for picking strawberries. We must begin at the bottom and try to make labor respectable. If we can in some way raise the dignity and respectability of labor it will be a great point gained. He had found that when his children went to school they had as much as they could do without engaging in horticulture.

Miss Smith asked whether garden work is harder than playing lawn tennis.

Mr. Hovey replied that spading is a good deal harder. It is not pleasant for either men or women to go out to the greenhouses at midnight with the snow three feet deep, the mercury at twenty degrees below zero, and the wind blowing a blizzard, to see that the furnace fires are all right. There is some light work in gardening, but much hard work.

Mrs. Wolcott said she had taken care of a greenhouse and raised grapes and sold them, and the work was not to be compared for difficulty to the burdensome work all day in a cellar kitchen.

John B. Moore said that he belonged to the class of farmers, and was thankful that he did. The wives of wealthy men make furnace fires more than farmers' wives. In Concord, where he lives, a farm without a flower garden is an exception, and the women take care of the flowers. The statements which had been made concerning the hard lot of farmers' daughters touched him in a tender place; their lot is not as hard as it has been painted.

President Walcott said it must be remembered that Concord had long had the benefit of a horticultural institution in the person of Mr. Moore.

The announcement for the next Saturday was a paper on "Ornamental Climbing Plants, and How to Use Them," by John G. Barker, Superintendent of Forest Hills Cemetery.

BUSINESS MEETING.

SATURDAY, February 5, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the Chair.

Mrs. H. L. T. Wolcott referred to the Prizes for Window Gardening offered in 1878, and expressed a desire that another attempt might be made for its encouragement. On motion of John B. Moore, seconded by William C. Strong, the Executive Committee were requested to consider the best method of encouraging Window Gardening among children under eighteen years of age.

The Secretary read the following letter from M. Charles Joly, Vice-President of the Société Nationale d' Horticulture de France, and a Corresponding Member of this Society:

PARIS, January 11, 1887.

ROBERT MANNING, ESQ.,
Secretary of the Massachusetts Horticultural Society:

Dear Sir,—I have received, through Mr. E. B. Wilder, the official account of the burial of our most esteemed friend, Hon. Marshall P. Wilder. The news of his death you had already given to me in your last letter.

I beg to send to you and to your Society the expression of our deep regrets for the loss of your great and most worthy Ex-President. Such a man reflects the highest credit on your country and your Society. Be assured that we take the greatest interest in the loss that your company and the horticultural world has sustained.

Yours most respectfully,

CHS. JOLY,
Of the Paris National Horticultural Society.

FRANK WHEELER, of Concord, and
GEORGE B. GILL, of Medford,

having been recommended by the Executive Committee, were on ballot duly elected members of the Society.

Adjourned to Saturday, February 12.

MEETING FOR DISCUSSION.

Ornamental Climbing Plants, and How to Use Them.

By John G. Barker, Jamaica Plain.

The cultivation of climbing plants has never yet been taken up and made a special subject of in our meetings here, but I have been requested by the Committee to do so at this time; and if, in my presentation of the subject, for the sake of completeness I here repeat some things you may have heard me say before, I hope their repetition may not be considered out of place.

I remark, first of all, that many of us have failed to cultivate climbing plants to the extent they deserve; and although we must admit that there are indications of a growing interest in them still the many places where climbing plants can be used, and are not, are earnest invitations to us to consider where and how we can plant them.

A short time ago it was my privilege to visit a very nice place where there is a very handsome conservatory; and the sight of a few climbing plants there cultivated led me to ask, Why not have more of them? Here are height and light, leaving no occasion to plant so thickly that the climbers will be detrimental to the plants below them. On the other hand they would be preëminently appropriate; and not only in the place above referred to, but in many conservatories and greenhouses well known to us all; and if used they would add a new charm to many such places; being attractive objects, whether trained against the wall or up the rafters and allowed to hang in festoons.

Let us now look at some of these climbing plants adapted to conservatory and greenhouse purposes. We shall find them to be, nearly all of them, old and tried friends; let me again introduce them to your attention. Go with me, if you please, to the large conservatory on the estate of Samuel R. Payson, at Belmont; and as you enter your eye will at once rest upon as fine a specimen of *Rhynchospermum jasminioides* as any of us perhaps ever knew. It occupies a large space — the size I will not pretend to give. The beautiful foliage is in itself of sufficient value to entitle it to a place in any large conservatory or greenhouse; and when you add to this its profuse flowering qualities, the blooms being pure white,

very fragrant, and produced in clusters, we find it valuable not only for decoration, but also for the bouquet maker. It will do well in the conservatory or the warmer house for stove plants. If not at the head it is certainly one of the best of greenhouse climbers. My little experience with it says good turfy loam, with leaf-mould and a good sprinkling of silver sand, is what suits it best to grow in.

I have seen those two magnificent climbers, *Lapageria rosea* and the variety *alba*, pictured as growing together; in fact, if my memory serves me right, I have seen them planted together at Mr. Hovey's. I do not blame any one for going into raptures over them; I cannot describe their beauty. I have had no practical experience with them, but I have seen and I love them. I have read in one place of the white variety, beautifully ornamenting a wall and then stretching across the house on a strong cord, about four feet from the roof and ten feet from the ground, the shoots being allowed to hang gracefully down; while on the opposite side was a plant of the old crimson kind, which met and mingled with the shoots of the white one. The effect of the mixture of the different colored flowers was, as may be readily supposed, very charming. Their beauty is not fully seen when the plants are stiffly trained against the back wall; the shoots should be allowed to hang down freely.

The cultivation that ensures success, as nearly as I can ascertain, comprises, first of all, good drainage; this is very essential. The drainage material should be covered with a thin layer of fresh moss. The compost should consist of the best fibrous peat with plenty of charcoal and sand, and in the growing and flowering season the plants should have copious supplies of water. They must be constantly well syringed to keep off insects. Look out well for the sow bugs, which are very fond of the young shoots. The beauty of these lovely plants is that they can be grown to the best advantage in a cool conservatory or greenhouse — better than in any other place.

Clematis indivisa is a good cool greenhouse climber, and can be trained to the rafters; the branches, which are thickly studded with flowers of a star-like shape and pure white, being allowed to droop down.

Tacsonia Van Volxemii is also a very handsome, fast-growing plant, and is seldom out of bloom. Train the principal stems to the rafters, and allow the young shoots to depend from them, and

their lovely flowers will show to the best advantage. This plant should be in every collection; its flowers are crimson, borne on thread-like stems, varying from nine to fifteen inches in length; and when it is said that they occur at nearly all the joints some idea can be had of its great attractiveness.

Bignonia venusta is a splendid old plant, well known to many and deserving a place wherever the space can be spared; if trained to the rafters, the drooping racemes of its beautiful large tubular-shaped amber colored flowers will form a display of floral beauty more attractive than it is easy to conceive of. I remember one in the greenhouse of an old friend in Philadelphia, trained to a post and then along the ridge-pole of his greenhouse sixty feet or more. He used the flowers for making designs, etc., and, in his own words, it was "one of his stand-bys." It will grow in any good soil. I think the best place is a good border inside the house; indeed I know of a plant in a greenhouse, not a dozen miles from here, and I am sure the soil has not been renewed in as many years; still it does well.

Mandevillea suaveolens is a grand climber, but it is susceptible to the attacks of the red spider; and the syringe must be used freely. It is very ornamental; if it grows too rapidly, the weak shoots may be thinned out. The blossoms are pure white, not unlike those of the Dipladenia in shape; and are so fragrant that it is sometimes called Chili Jasmine. If this were only hardy and you could persuade it to grow with *Clematis Jackmanni* and flower at the same time, could one imagine anything more grand?

Let me ask your attention to the Passifloras. Their habit is robust and free growing, and they are adapted for running over the roofs of their respective habitations. *Passiflora cœrulea*, the flowers of which are white and blue, is perhaps the best known and the most generally cultivated species; and deservedly so.

The fruit of some species, such as *edulis*, *laurifolia*, and *quadrangularis*, is eaten; the fragrant, succulent pulp which surrounds the seed is found to be cooling and pleasant, agreeably acid, and admirably adapted for allaying thirst in hot climates. At the greenhouses of the late Edward S. Rand, Sr., in Dedham, the writer well remembers seeing *P. edulis* and *P. quadrangularis* grown in large pots; and that they flowered and fruited quite freely. I will not specify any more of the varieties. All are of easy culture; liable, I know, to the mealy bug, but with a bottle of

alcohol and a small camel's-hair brush you can soon clean them out. A little occasional labor devoted to looking after these pests pays well.

Some perhaps will ask, What about *Stephanotis floribunda?* I well remember in the greenhouses of the late Mrs. Ward, at Canton, when under the care of Joseph Clark, that he had two balloon trellises on the upright posts that support the roof of the greenhouse, and if I remember rightly there were plants of Stephanotis set in places under the stage prepared for their reception; they were carried straight until they reached the frames, and were then trained around and around until each frame was covered. These were indeed beautiful specimens, as some present may remember, and by careful management in the resting and growing seasons were so developed that I think nothing of the kind could equal them. The Stephanotis, if allowed, will cover a large space and produce a great abundance of flowers. But I hear some one saying, "I don't want the dirty things." Well, I know they will get dirty; so will you if you don't clean up pretty often; but they are not so hard to care for as you think. When the plants are not in flower, if dirty, take the syringe or hose and bring a stream to bear upon the plant with force enough to dislodge the insects, this is easy, try it; with the use of the sponge too many buds are dislodged and you lose a good deal of bloom.

What shall we do with the Bougainvillæas? If I had a greenhouse with a back wall to it like Col. Wilder's I should certainly have one. I do not recollect whether his was *glabra* or *spectabilis*, but I think *glabra*. Perhaps a brisk temperature may be best to grow it in, and that followed by a season of rest; and if I rightly understand about the ripened shoots these are pruned to short spurs in the early part of the year, and from these spurs the beautiful bracts are produced. I have seen the plant referred to when it formed a mass of the loveliest coloring — easier to be appreciated when seen than to describe; for I hardly see how the best description possible could do it justice.

We will take a glance at the Allamandas. *A. cathartica* is one of the oldest species, and the best adapted of any for a pillar or for training up the rafters. The flowers are bright yellow, and are produced very abundantly for months. There are several other species, but none as well suited for climbing as this.

I need only to call your attention to the Roses; their value is

well known, and many here can speak of them more instructively than I can, with my limited experience. While in Cambridge I tried to grow grapes in the greenhouse, but the success was not satisfactory; finally they were removed, and I planted a rose bush to take the place of each vine in the old vine border.

The roses were all grafted on the Manetti stock, some five feet high, so as to admit of their being drawn through the old holes where the vines had been, and reach the wires on which they were to run. This border was entirely outside; I always covered it sufficiently to keep out the frost, and allowed the plants to rest as long as they would, which was generally till the latter part of March, when the sun was getting higher each day. This plan proved very satisfactory. The varieties were Maréchal Niel, Bon Silène, Safrano, Lamarque, and Solfaterre.

Other climbing plants that might be added to this list will undoubtedly suggest themselves to you; so I pass on to spend a short time with the climbing annuals and see what we can find there. Among them are many that are useful and beautiful. A very familiar one to you all is *Cobœa scandens* and *C. scandens variegata;* these will run from fifteen to thirty feet in a season, if the seed is sown in March in gentle heat and transferred to four-inch pots. This method of culture will save several weeks' time in spring.

Maurandyas usually grow about ten feet, and flower in great profusion. I have seen a circle of cedar poles placed in the ground and drawn together at the top with Maurandyas twining over them, which made a handsome centre for a large bed. *Eccremocarpus longiflorus* and *E. scabra* are handsome climbers seldom growing more than six feet; the flowers are orange colored. The plants should be started early in March, in gentle heat.

The Thunbergias are very pretty climbing plants of rapid growth and free blooming qualities. The red spider likes them; but in a shady place, where they get only the morning sun, they will thrive; and a free use of the syringe will be a great help to their growth. I once saw the side of a north piazza covered in this way, and the effect was very handsome.

Tropæolums are well known to you all. I have seen them planted on the top of a steep bank, and when thus placed and well cared for they are very effective, as their bright flowers form a rich contrast with the grass. For trellis work and verandas they are

very useful plants, and their growth being rapid and their flowering qualities so free are recommendations which should give them a place wherever room can be found.

Physianthus albens is one of the very best quick-growing climbers. I remember seeing this plant at the late Mrs. Ward's in Canton several years ago. It was in view as you entered the garden, and was trained to a fence, covering a space of from four to six yards square. Every joint was furnished with a raceme of pure white flowers. I have not seen this plant except in flower; but the large seed vessels are described as quite ornamental, and when ripe bursting and exposing a handful of cottony fibre to which the seeds are attached.

Lophospermum atrosanguineum, *L. scandens*, and *L. erubescens* are all very beautiful, and will grow ten or twelve feet in a season.

Ipomœas are so well known to all that you need only to hear the name to be reminded of the ease with which you can grow them. Have you a veranda that you can train them against? If so, prepare the soil, stretch your strings, and sow them, and when grown they will greet you each morning with their pretty open flowers.

Ipomœa noctiflora is a climber of very rapid growth; it has grown twenty or more feet in a single season. The flowers are pure white, four or five inches in diameter, and as they expand at night have a striking effect. It is also called Evening Glory or Moon Flower. I know of no climber more useful than this.

I will only add the Cypress Vine (*Quamoclit vulgaris*) and Canary-bird flower (*Tropœolum peregrinum*) to those I have already mentioned. But before leaving the climbing annuals let me remind you that they are not appreciated as they should be. They are well adapted for setting around arbors, or training over fences. Strings may be fastened to the top of the fence or building and stretched to pegs driven into the ground; on these strings they will twine in the most graceful manner, and the profusion of their flowers will amply repay the attention you may give them.

I think it probable that the large majority of cultivators will be more interested in the hardy climbing plants than in those already mentioned, as of course more can have them; and I must acknowledge that of late my own taste has inclined very much in this direction. The force of circumstances perhaps contributed as much as anything else towards inducing me to use them — my last

place having a high wall that had to be covered in some way; of which I have taken occasion to speak more than once. As the vines have grown very much in the meantime, I will again call your attention to this covered wall.

I used first of all what is well known to you all as the Virginia Creeper (*Ampelopsis quinquefolia*); properly prepared places were made for the plants about five feet apart, good strong vines were planted at each place, and in four years the wall was well covered to a height varying from ten to eighteen feet. In the fall of the year the foliage, so richly colored in beautiful shades of scarlet and crimson, whether grown by itself or intermingled with green foliage of the trees before changing, is a very conspicuous ornament. But judgment should be used in determining where it is to be planted. It should not be planted with the idea of covering a brick building, for it does not cling close enough — the brick is too smooth. I know a church in Essex County where it had covered the side entirely, and twice to my knowledge it was blown entirely down, and many days' labor were required to replace it.

Here the *Ampelopsis Veitchii* comes in; once started it gives little trouble; indeed, it takes care of itself. We have continual opportunity to notice how handsome it looks on Trinity Church and the many fine residences on the Back Bay. No description is needed to those who have seen it; it describes itself. Let me, however, invite you to Forest Hills Cemetery, where you can see it in unsurpassed beauty on both sides of the entrance; and if you can come but once let it be in the latter part of September. I have no words that can adequately describe the richness of these masses of foliage. That on the south side has been thought to be at all times the richer of the two in the color. Surely among the many good things Japan has given us, we have received in this plant one of our very best climbers. In a conversation which I had with our late beloved friend and associate, Col. Wilder, he repeated a remark made by Mr. Ellwanger — that it was worth coming a thousand miles to see the entrance to Forest Hills Cemetery.

About three years ago *Ampelopsis Veitchii* was planted at the base of a ledge some twenty feet in height, alternately with what is known as the English Ivy. The contrast between the rich changing foliage of the Ampelopsis and the bright green of the Ivy was very effective. I can recall in imagination how it looked as clearly

as when I stood in front of it. I cannot well describe it; but if you have a ledge try this combination, and I am sure it will please you. A few pine boughs were tied over all the ivies in winter, affording all the protection that they required. This was done about Thanksgiving time, and the boughs were removed about the first of April. In this cemetery many fine bowlders are used as memorial stones, in place of monuments, having bronze tablets set in for the inscriptions; these stones are covered with Ampelopsis. It may strike you as odd, but the effect is very pleasing.

We have rambled somewhat from our subject; let us go back again to the wall that I first alluded to. You will remember that it was covered mainly with Virginia Creepers; at a portion of it, *Clematis Jackmanni* and *C. Viticella* was planted and allowed to ramble with the creeper just as they pleased. Now let me ask you to look at these bright flowers peeping out here and there, sometimes singly and then again in larger clusters among the foliage of the Ampelopsis — in the latter part of July and August before the changing of the foliage of the Ampelopsis — and you will see a picture of color not equalled by any artistic bedding combination that you can find.

But the lower part of this wall was bare in many places, for the vitality of the vines was at the top, nearest the sun. What was to be done with it; how should the bare places be made green; or how was it possible to cover them?

Looking to Japan again, I found *Lonicera brachypoda variegata;* widely known and sought on account of its beautiful variegated foliage. Thus very soon the difficulty was met, and the lower part was filled up; indeed we find the Lonicera twining on the stems of the Ampelopsis; and in about three years it was eight and ten feet high.

Another spot occurred not filled up, and here I found a place for *Akebia quinata*, another very useful climber introduced from China; this being of rapid growth soon found its way to the top of the wall. The foliage is delicate and pretty; the flowers, which are produced in clusters, are of a bluish violet color and sweet scented, thus attracting the notice of the passers-by; so I had found another pretty vine to mingle with the Ampelopsis.

Once more I looked about, needing yet another vine. This I found in *Aristolochia Sipho*, perhaps better known as the Dutchman's pipe. Some may say, "What did you want with that; it

will not cling to the wall?" True, but it will twine up the stems of the Ampelopsis, and when it has attained a good size its large heart-shaped leaves afford a charming contrast with the other vines; so that I have been sorry I did not plant many more.

Again: I wanted a vine that would cling to the wall, and this time I had a place for *Bignonia radicans*, which I used to advantage. It was placed in a spot bare until then; but being a true creeper and adhering with great tenacity wherever it can find space, and also a vigorous grower, it soon occupied all the vacant room there was and more. The foliage of this plant appears late in spring, and there is no brilliancy to it in the fall, but the flowers are pleasing, and as you are well aware are borne in large clusters in August and September. Indeed the vine itself eventually showed but little, being covered by the other vines; but its flowers appearing amongst their foliage produced a handsome effect.

I also planted there the climbing Hydrangea (*Schizophragma hydrangeoides*), two years ago. It has endured the two winters without any protection and promises well.

I think we have been long enough at the wall, but I must say that no work that I have done or thought that I have given to any project ever paid better than that.

Now that I have tried to tell you how I covered my wall, let us see if there are not some other vines that you may be interested in, and would like to know about. At a friend's house, trained to a trellis by the side of the front door, is a very luxuriant vine of *Celastrus scandens*, or Bitter-sweet. Either with the flowers, which are small and greenish, produced in raceme-like clusters, or with the orange-colored pods opening and displaying the scarlet covering of the seeds, it is one of our handsomest native climbers. Don't you think this was a good place for it? George B. Emerson says it should be cultivated for its picturesque effect.

Vitis heterophylla is represented in the frontispiece of the "Gardener's Monthly" for 1877, and the following excellent description of this handsome vine is given: "Its great merit in ornamental gardening is not near as well known as it ought to be. The leaves are first green, but when the plant has something to run on and grows vigorously, they are prettily feathered with white. The deep sky-blue berries, towards fall, give it additional attractions. It grows with great rapidity, very soon covering an

arbor or trellis. It is a native of the north of China and Japan, and perfectly hardy here."

I come next to the Glycine, or Wistaria; of which *W. Sinensis* is the species generally cultivated, and the best of all; many a piazza would have had no ornament had it not been for this vine. In Lynn there are many large vines, but for some cause the past three seasons they have flowered but little. I think, however, the secret of success is to keep the growing shoots well pruned in; for by so doing we promote the formation of flower buds. I know of some vines that look little better than so many old stumps when the foliage is off; but they seldom fail of a good show of flowers. I also know of a very large old apple tree, at the base of which two good plants were placed; in ten years the vines covered the tree, and such a picture as was produced by the hundreds of beautiful pendent clusters of flowers was a sight never to be forgotten.

Of Honeysuckles, the best native species are *Lonicera sempervirens* and *L. flava*. These bloom in great profusion during the summer and autumn months. The blossom tubes lie in clusters over the foliage; and in the autumn the abundant scarlet berries are very ornamental. These features entitle them to a place in every garden of any size. The *Lonicera pubescens* is a very vigorous growing species. *L. flexuosa*, the Chinese twining species, is also one of the best.

The Roses must have a place. The Baltimore Belle and Queen of the Prairies are old varieties, I know, but they are good as ever, and if you can find room for them on your trellis or arbor they are worthy of your best care and attention. It will be but a short time after planting before a profusion of flowers will reward you for your care. I am not familiar with any of the newer kinds.

I will just mention a very attractive native vine with fine glossy leaves, *Rhus toxicodendron*; you will know it from the Virginia creeper by its having three leaflets instead of five, with smooth edges. It is attractive, but in my estimation never should be allowed to grow, as it is fearfully poisonous to some people, and an unequivocal nuisance. If you have any children I advise you to extirpate it at once; chop off every piece everywhere, every chance you have.

Actinidia polygama, from Japan, is a vine highly recommended; the foliage luxuriant, flowers white; my experience with a few small plants will not enable me to say any more about it.

I have brought to your notice such varieties of climbing plants as I am somewhat familiar with. Some are like old and tried friends, others to all appearance good but not so well tried, yet promising well. There are many, I am aware, that I have not mentioned. I hope in the discussion which is to follow to hear from you about those.

I think our climbing plants are too much neglected: why, I do not know. Is it because it is difficult to find a place for them? That has not been my reason for many years; surely the greenhouse or garden will afford a place for a climbing plant somewhere, and I am glad to observe that there has been a growing tendency to cultivate them.

Whether they are viewed as trained and elegantly festooned in your window (and this is a part of the subject I have left out entirely) or in the conservatory or on the trellis in front or by the side of your piazza; whether running over and covering some old decayed tree or unsightly stone wall or rock; whether adorning the grounds of the rich merchant or the laborer's humble cottage, or whether their aid is sought in screening your arbor from the rays of the hot summer sun—in any and every one of these cases what class of plants is there which can be regarded with feelings of greater gratification and satisfaction?

In conclusion, I may be permitted to say that not a single wall or fence, especially if viewed from the house, and, I will add, no trunk of any tree if not in vigorous growth—in fact no object whatever, capable or that can be made capable of receiving and supporting a plant, should be left uncovered. The free use of climbing plants always imparts an air of friendship and freedom, no matter where you meet them—on some lofty tree in the woods, the cemetery entrance, or the portico over your door, or in any place wherever they appear.

Our motto is Progress; let the beautiful climbing plants receive a larger share than heretofore of our skill and attention, and I am sure we shall be well repaid for the time spent by their return of beautiful foliage and flower and grateful shade.

Discussion.

William C. Strong was called on and said that he could add but little to what the essayist had said. As the paper was read, he had reflected how wonderful is the variety of vegetable growth.

The tendency has been too much in favor of maples and other stiff upright growing trees, and too few climbing plants have been used. The woodbine or Virginia creeper is beyond question the most beautiful of all vines; he was not ashamed of it in contrast with the English Ivy, though the latter is evergreen. When in England he visited the ruins of Kenilworth Castle, part of which is covered with English ivy and part with woodbine, and he thought the latter the more beautiful and graceful of the two. The Japan Ivy (*Ampelopsis Veitchii*) is far less graceful, but it clings to walls much more strongly than the woodbine, and so has its place for covering buildings of brick or stone. Many climbing shrubs can be trained like weeping trees, with straight stems, drooping from the top. There is a variety of *Vitis riparia* which ought to have more prominence than it has yet had, for the beauty of its foliage; which excels that of any other grape vine, being very deeply cut.

William J. Stewart said that while walking with Jackson Dawson in the Middlesex Fells they saw a wild grape vine with a very deeply cut leaf which they thought highly ornamental and well worthy of cultivation; probably this was the same as the one mentioned by Mr. Strong.

Mr. Barker said that a gentleman had suggested this grape to him as a covering for old trees, but he omitted it hoping that the gentleman would be present to speak of it.

Henry Ross was next called on and said that the best of all the honeysuckles is the *Lonicera Halleana*, which flowers freely, is very fragrant, and the foliage is almost evergreen. *Bignonia atropurpurea* is superior to *B. radicans*; it is perfectly hardy. He admires the *Ampelopsis quinquefolia* above all other vines for its grace, beauty, and hardiness, but it will not cling to walls like *A. Veitchii*. On a wooden house it is much preferable to the latter or to other clinging vines like the Bignonia or English Ivy, but it must be provided with a trellis. For stone or brick walls *A. Veitchii* is better, but it must have protection until it gets established, and even then large patches will sometimes die. It likes a somewhat shady place. There is a house in Newton covered with the Virginia creeper which hangs down five or six feet, and waves most gracefully in the wind. A new species of Ampelopsis, *A. Engelmanni*, has been introduced, which resembles the Virginia creeper in habit, but clings to walls almost as closely as

A. Veitchii. It was found in the woods in Virginia. Mr. Ross spoke of a wistaria, planted at the foot of a hickory tree, which did not grow for four years, but then started and grew to the top of the tree. The wistaria is now about six inches in diameter, and the hickory seven or eight. The former has coiled around the latter and cut into it until the two are apparently one, but the tree continues to bear nuts and the vine to bear flowers.

Warren H. Manning said that there are two quite distinct varieties of *Ampelopsis quinquefolia*; one has grayish bark and the other brownish; one is provided with suckers and the other with tendrils. *Vitis bipinnata* has bluish berries, but is not quite hardy here. *Aristolochia tomentosa* is sometimes sent out by nurserymen instead of *A. Sipho*, which is a much better species. The Menispermum or Moonseed is a very pretty small vine with a roundish leaf. The *Akebia quinata* is one of our best vines, coming out fresh and green in the spring. The Virginia creeper does better at the seashore than any other vine; indeed it does well almost anywhere. He had seen an elm tree in Concord having the stem, which was quite tall, covered with Celastrus, and presenting a very brilliant appearance in winter.

Mr. Barker added to the climbing plants mentioned in the essay the *Bignonia præcox grandiflora.* Plants four feet high had at the end of every shoot a mass of flowers. He had seen *Ampelopsis Engelmanni* growing on a pole taller than a man, and it clung to the bark when that was stripped off. He spoke of the very beautiful effect produced by training the Virginia creeper up the trunks of a row of elm trees at Jamaica Plain, and then across from tree to tree on ropes.

Mr. Strong said that there are several varieties of *Ampelopsis quinquefolia*, one of which has woolly leaves; one has larger leaves than others, and some do not change color in autumn.

Mr. Ross said that at the Arnold Arboretum Mr. Dawson had Virginia creepers with single stems trained to stakes and drooping like a tree, and at Mr. Strong's he saw wistarias trained in this way in flower. Mr. Wood has such a one with a stem nearly six inches in diameter, and it is a very pretty way to grow them.

Mr. Strong said that when trained in this way wistarias ripen more seed than when grown on trellises.

Robert Manning warned those who might desire to cultivate the Actinidia or Celastrus against getting barren plants. The former

produces, on plants with perfect flowers, a fruit of pleasant flavor. He mentioned the Madeira vine (*Boussingaultia baselloides*) as desirable for its fragrance and beauty, but it flowers so late in autumn as barely to escape frost, and therefore it would be better to forward it under glass.

Mr. Ross inquired whether vines bred mosquitoes.

Mr. Barker said that he could not answer the question, but he could say that he lately visited a friend who had no vines but a great many mosquitoes.

Mr. Strong said that he would have all vines on trellises and not directly on the house, though it did not make so much difference with brick or stone houses as with those of wood. Trees also should not be too close to houses.

The Committee on Discussions announced that on the next Saturday M. B. Faxon would read a paper on "Annuals and their Cultivation."

BUSINESS MEETING.

SATURDAY, February 12, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President WILLIAM H. SPOONER in the chair.

President WALCOTT stated that much misapprehension existed in regard to the effort to obtain the use of ground in the Public Garden on which to erect a building for the Society, and read a draft of a letter which he had prepared to be published for the purpose of correcting this misapprehension. It was unanimously voted that the President be authorized to publish the letter.

Adjourned to Saturday, February 19.

MEETING FOR DISCUSSION.

ANNUALS AND THEIR CULTIVATION.

By M. B. FAXON, Boston.

Mr. President, Ladies, and Gentlemen of the Massachusetts Horticultural Society:—

Your Committee on Publication and Discussion has seen fit to call upon me to address you on the subject of Annuals and their

Cultivation. I know very well that I shall tell you little beyond what you already know; but having accepted their kind invitation it only remains for me to bespeak your patience while I tell you what little I have learned pertaining to this subject.

Success in the cultivation of any flower, fruit, or vegetable will be in direct proportion to the care and labor bestowed upon the soil for the reception of the seed or plant. Therefore in the fall, as soon as a few severe frosts have stripped the flower beds of their beauty, I clear the surface of the beds, and thoroughly trench the soil to the depth of twelve inches; eighteen inches would be better, but my soil does not average over twelve inches of loam before a gravelly subsoil is reached. The ground having been thoroughly loosened, well decomposed barn-yard manure is applied at the rate of from twenty to twenty-five cords per acre, and turned under one spade deep. Nothing more is done until spring; when the ground is again trenched as before, and a small quantity of some good chemical fertilizer is spread broadcast. The surface of the beds is then raked smooth and fine, and the preparation of the soil is complete. My largest flower bed is two hundred feet long by sixteen feet wide, and faces the south. At the back of the bed is a high board fence, which shelters the flowers from the north winds; around the sides and front of the bed there is an open lath fence, with gates at convenient distances; and at every twenty feet are division fences six feet in height, to break the force of the wind coming either from the east or from the west.

I have spoken thus minutely about this bed, as on account of its ample protection from the winds I consider it the most desirable bed on my place, and I look to it for my best flowers; and wish to emphasize the desirableness of protection from wind for flower beds. I have never grown a large variety of annuals, but have selected a few such as appeared to me to deserve special attention, and have tried to grow those few varieties to something like perfection, and to this end have devoted the largest part of my leisure hours for the past five years to the cultivation of Asters, Sweet Peas, Tropæolums, and Pansies; and I believe there is a future for these four flowers that will far exceed the expectations of the most enthusiastic cultivator of annuals.

Of course, botanically speaking, Pansies are not strictly Annuals, but since they are largely grown as such, and were allowed by this Society, last season, to form part of an exhibit competing for

the Special Prizes offered for Annuals, I will speak of them today as such. Let us now consider some of the most desirable annuals for general cultivation; and especially the four just mentioned.

THE ASTER.—I usually make two plantings of Asters, the first about the fifteenth of March, and the second near the beginning of April, in the greenhouse, in shallow boxes. As soon as the plants are well up, I prick them out into thumb pots. From this time until the plants are set in the open ground, where they are to remain, the greatest care is necessary to keep them from becoming spindling; "keep them as cool as possible and still keep them growing" is what I am continually writing my gardener; and if this is done good stocky plants will be the result.

About the fifteenth of May the plants should be set in the open ground; in rows or in beds as the cultivator may prefer, but in either case the plants should be set at least eighteen inches apart. If the weather is dry when the plants are set out, they must be watered until they become thoroughly established in their new position. Keep the soil loose and free from weeds, until the buds begin to set; when all cultivation should cease, and nothing more is necessary until the flowers are ready to gather.

When the plants are about two-thirds grown they should be tied up to stakes; if this be neglected and a heavy storm should happen to come just as they are in full bloom, the plants will be levelled to the ground, and the flowers covered with dirt and spoiled. A bed of asters is in its prime for from eight to ten days, during which time a grander sight is seldom seen, especially before any of the flowers have been cut.

Out of forty or fifty varieties, three classes practically include all the asters grown; these three are Truffaut's Pæony-Flowered Perfection, the Victoria, and the Pompon. Truffaut's Pæony-Flowered Perfection and Victoria are both large asters; the petals of the former incurving to the centre; the petals of the latter recurving to the edge. Pompon Asters have small flowers about the size of a half-dollar.

The following list gives the principal colors afforded by each of the three classes:

Truffaut's Pœony-Flowered Perfection.—Snow white, rose, rose and white, dark rose and white, light carmine and white, carmine, crimson, dark crimson and white, violet, and purple and violet.

Victoria.—White, white tinted with rose, rose and white, carmine rose, crimson, and violet.

Pompon.—White, white and carmine, rose, crimson, crimson and white, and violet.

The above I think include the desirable colors of each class, but there seem to be certain colors which are especially consonant to each class. Thus my best Perfection Asters have been either crimson or purple violet; my best Pompons, crimson or white and carmine; and my best Victorias white or rose. Why this is so I cannot say, but so they have grown with me.

The Sweet Pea.—I think that I can say without differing in opinion from any one present that the Sweet Pea is the most desirable annual in cultivation. Its delicate fragrance, beautiful form, and variety of coloring make it a favorite with the florist; while its easy culture and long continuance of blooming secure its cultivation in every flower garden.

Sweet peas must be planted as early in the spring as the ground can be worked; the seed should be sown in drills, and covered at least six inches deep. This may be done in two ways. Having prepared the ground and made the drills of the desired depth, we may drop the seed and draw into the drill earth enough to cover the seed two inches deep; as soon as the plants appear through this covering, draw into the drill two inches more earth; and so on until the drill has been filled up even with the surface of the ground. Or, secondly, the seed may be dropped and covered in the usual manner, at a single operation.

The surface of the ground sometimes becomes hard just as the young plants are about to appear; especially so after a shower followed by a hot sun. Unless some means is taken to prevent this, a great many of the young plants will fail to break through the soil, and no more will be seen of them than if the seed had not germinated at all; and those annoying "gaps" will appear in the rows. A slight raking just as the plants are breaking ground will prevent this, and also kill any small weeds that may have started.

The most laborious task in the cultivation of sweet peas is bushing them; and bushed they must be almost as soon as they are well up. Having an unlimited supply of white birch at hand I use birch brush for bushing the sweet pea, the same as for tall growing garden varieties. Wire hen netting makes a very desirable trellis for them to run upon, and is very neat. Whatever they are trained upon must be very firmly secured in position, as the vines

when fully grown will surely be blown down unless very strongly supported.

Another very desirable mode of cultivation is to begin by placing the row of birch brush, or whatever the vines are to climb upon, in position before the peas are planted; then plant two rows of seed, one row on each side, about four inches from the brush stems or trellis wires. As the vines attain their growth their supports will be entirely hidden from view and a beautiful wall of flowers will be the result.

The following are standard varieties and should be in every collection:

Painted Lady, a beautiful rose and white.
Crown Princess of Prussia, a delicate light rose.
Scarlet Invincible, bright scarlet crimson.
White, pure white.
Purple, dark purple.
Black Invincible, the darkest variety grown.

The following named sorts are of recent introduction and have not as yet been sufficiently tested to warrant placing them among the standard varieties — although some of them are very promising.

Princess Beatrice.—Color beautiful carmine rose; an early and continuous bloomer, with extra large petals. It holds its beautiful color until frost; and if it proves as desirable during the next few seasons as it now appears it will without doubt take the place of Crown Princess of Prussia; for it cannot be denied that the latter fails to hold its color.

I give the introducers' descriptions of the following:

Cardinal.—A splendid robust growing variety, producing a great profusion of bright shining crimson scarlet flowers, very distinct and handsome.

Indigo King.—The standard of this charming variety is of a dark maroon purple, with clear indigo blue wings.

Princess of Wales.—A lovely variety, shaded and striped with mauve on a white ground in a most pleasing manner; the flowers are of great substance and perfect shape. It has been awarded a First Class Certificate by the Floral Committee of the Royal Horticultural Society, London.

Vesuvius.—A new large flowered variety, very fragrant. Upper petals brilliant rose, shading to a deeper hue, and spotted carmine; lower petals violet shaded lilac.

Bronze Prince.—A magnificent variety, with well formed flowers; the standard is of a rich shining bronze maroon; the wings are of a deep bright purple color.

Lottie Eckford.—This charming variety is in striking contrast to the preceding, the standard being white suffused with purple, and the wings, which are also white, having a pretty edging of blue.

Butterfly.—Pure white ground, delicately laced with lavender blue.

The above list I think embraces the most desirable of the newer varieties, although only a few of them. Five still newer candidates for favor have been brought forward this past season, and will be grown next summer for the first time; they are

Duchess of Edinburgh.—Standard light scarlet, flushed with crimson, slightly marbled or splashed at the edge with creamy white; wings deep rose.

Imperial Blue.—Wings bright blue, slightly shaded with mauve; the standard being rich purplish crimson.

Isa Eckford.—Flowers of a beautiful creamy white, heavily suffused with rosy pink.

Orange Prince.—Described as follows: "The most distinct variety ever sent out, and one that has been awarded a First Class Certificate by the Royal Horticultural Society, London. The standard is bright orange pink, flushed with scarlet; wings bright rose veined with pink; extremely handsome."

The Queen.—A very beautiful and pleasing variety; the light, rosy pink standard being in charming contrast to the wings, which are light mauve.

The introducer of the above new varieties writes of them as follows: "The new sorts are all very distinct, and of unusual excellence, the flowers extremely pretty, and of the most charming and varied colors. They cannot fail to please, and can be highly recommended."

Before leaving this branch of my subject allow me to state what I believe to be the "key note" of successful sweet pea culture; which, in nine seasons out of ten, will give success. It is short and easily remembered:—*Plant early and plant deep.*

The Pansy.—Since we are about to discuss the cultivation of the Pansy as an annual, the first question that presents itself to our minds is, What strain of seed shall we plant? and this question brings up another, What are the properties of a perfect flower?

Substance of petal is the most important point. However perfect may be the form, however beautiful the color or large the flower—if it is weak and flimsy its beauty is destroyed. The petals must be thick and velvety, a condition which will enable the flowers to keep well after being gathered.

The second point is Form. The petals must be so disposed as to form almost a perfect circle, yet I think the two upper petals should be a little longer than the others, so as to just break the circle. The margin must be smooth and the petals perfectly flat; not turning up at the edges, which defect spoils a great many flowers otherwise perfect.

The next requirement which demands our attention relates to Color. Whatever the color, it should be clear and pure; with the eye large and distinct.

Lastly comes Size; of course it is desirable to have good sized flowers, but size is the least important point of a good pansy.

I believe judges usually adopt the following scale of points:—form, four points; substance, three; color, two; and size, one; if I were to attempt to improve upon this scale, I should say, Give to substance four points, or perhaps even five; and let us have some good, heavy, velvety pansies.

Referring to my diary I find March 10 has been the average date for planting pansy seed; and May 20 for setting the plants in the open ground. The young plants are treated in the same way as the asters, and are transplanted into beds as soon as the ground becomes dry and warm. The beds are prepared for the reception of these plants as previously described; except that thoroughly rotted cow dung is the only manure used; horse manure should be avoided. Set the plants two feet apart each way, and water thoroughly in dry weather. Almost as soon as the plants have become established in their new position, they will begin to bloom; and unless they are closely watched, and all the buds are picked off as they form, the plants will exhaust themselves in producing a few very inferior flowers, and grow very spindlingly.

From the day that the plants are transplanted into the open

ground the beds should be examined every morning; every visible bud should be pinched off and every long shoot shortened, the object in view being to obtain large stocky plants, full of vitality. If this matter is attended to regularly it will only take a few minutes each day; but if neglected even for a day, and the day be a warm one, some of the plants will be sure to flower; which will weaken them and partly undo our previous work.

If the plants are thus kept from flowering until cool weather, and then allowed to bloom, the flowers will be of good substance and large size. I do not wish this to be taken as implying that I ever consider the size of the flowers in any different light from that mentioned in my scale of points; but this keeping-back process will make large and at the same time heavy and velvety flowers.

After the first of September the flowers of almost all other annuals begin to grow poor and the first frost practically ends their flowering. But the pansy seems rather to improve than otherwise by any frost that we usually have in September; and it is from the first of that month until the middle of October that a bed of pansies grown as described is in its prime; a time when flowers of all kinds are, I believe, rather scarce. Last fall, after every other flower in my garden had been spoiled by frost, my pansy bed remained for a month in full bloom, covered with an abundance of the most beautiful flowers.

The Tropæolum.—Of this extensive genus, including with hardy annuals also greenhouse and herbaceous perennials, three of the annual species chiefly attract our attention; these are

Tropœolum majus (Tall Nasturtium).—A well known running species, much used for covering trellises and rustic work.

Tropœolum minus (Dwarf Nasturtium).—A dwarf species, growing from one foot to fifteen inches in height, and one of the most useful flowers we have; for its compact growth and rich colored blossoms render it an excellent bedding plant.

Tropœolum Lobbianum.—A running species: which may be grown on a trellis, or as a dwarf if the ends of the vines are closely pinched off, otherwise it will cover unnecessary space. The flowers are smaller and more cup-shaped than those of the two preceding species; and are of very brilliant colors.

As regards the culture of the Tropæolum I have hardly anything to say, it is so easily grown. All that seems necessary is to plant the seed in good rich soil, see that the plants have plenty of room in which to grow, and keep the soil thoroughly stirred.

I see by the clock that I have used up my allotted time, and yet have only opened this subject of Annuals and Their Cultivation, but if anything that I have said shall help to extend the cultivation of this beautiful class of flowers, I shall be more than pleased.

Discussion.

Henry Ross was called on by the Chairman, and said that he had not taken half the interest in annuals that he wished he had, and he meant to do differently in future. He mentioned the Dwarf Antirrhinum, or Snapdragon, as a most beautiful annual. The Dwarf Sweet Alyssum and Petunia are also desirable. He means in future to grow his verbenas from seed for they have been brought to such perfection that we are pretty sure to get good ones, and seedling plants are not diseased like those raised from cuttings. Petunias raised from good strains make one of the most beautiful shows in the flower garden. At Forest Hills Cemetery a large part of the floral decoration is composed of annuals.

John G. Barker thought we had all been remiss in looking after the cultivation of annuals. He spoke of a visit of the Garden Committee to the garden of a lady at Hopedale, which took the prize for the best flower garden. Annuals were extensively used here with beautiful effect. There was one bed composed of *Phlox Drummondi* and asters of different colors, with a border of Ageratum, which was particularly beautiful; he had never seen a bed of foliage or flowering plants more ornamental. Almost all the work in this garden was done by the lady and members of her household. He wished more ladies would devote themselves to growing annuals; they could easily do it. He had been through the seedsmen's catalogues pretty thoroughly to find the best kinds of annuals. For mixed beds at Forest Hills Cemetery, of which he is Superintendent, he has to make careful preparation in order to meet the wants of lot owners, there being over three hundred lots which are under perpetual care by the Cemetery. He will have this year four thousand asters; if planted properly nothing will take their place. Antirrhinums are invaluable. The Schizanthus is exceedingly valuable. Sweet peas cannot be used in bedding, but there are places where they are invaluable. *Phlox Drummondi* cannot be dispensed with. Wonderful strides have

been made in the improvement of the Zinnia, until now it is a magnificent autumn flower; we could not get along without it.

It is important in planning mixed beds to study the habits of growth and the colors of the different plants, and to arrange them so as to produce harmonious and pleasing effects. The tall growing kinds should be placed in the rear or centre of the beds, with the lower growing kinds in front. He had seen one border planted against a curbstone sixteen inches high, with tall Phloxes in front and Cupheas behind — exactly the reverse of what should have been.

In regard to pansies, the essayist had said all that was necessary. The speaker sows his seed in September and keeps the plants over the winter in a cold frame for planting in April, so as to have as good a bed as he can by Decoration Day. His experience with verbenas is the same as Mr. Ross's. He makes two or three sowings; the first about this time, and afterwards at intervals of two or three weeks. They flourish best in new soil, and he tries to give them a new place every year. They deserve a prominent position. We have neglected some of the old things too much, and he means this year to have a little garden of annuals on his own account, including mignonette.

The ladies were next called on. Miss S. W. Story approved especially of the Schizanthus. Last year she cultivated in the greenhouse a species of Cosmos, a comparatively new annual resembling the single dahlia.

Mrs. E. M. Gill said that last year she grew three thousand pansies. She sows the seed in August and September and transplants as she gets time, covering them with glass from October to the last of March. She uses fresh cow manure for them successfully. Seedling verbenas are not only freer from disease than those raised from cuttings, but the flowers have more substance. Calendulas and Marigolds are valuable annuals.

Robert T. Jackson said that the season of bloom of marigolds is short, and it is well to have a succession, sowing until the middle of May. Those latest sown will last until frost comes. When it is desired to have double flowers, single ones should not be left in the garden as the bees will carry pollen from them which will cause the double ones to deteriorate. He pulls up all the poor ones.

Mr. Faxon added to the annuals previously mentioned by him

the Dwarf Scabious, Ten-weeks Stocks, and Single Dahlias grown as annuals. He does not think sweet peas need new ground every year; he had grown them on the same ground seven years. In answer to an inquiry he said that as a rule the named varieties come true to name. He imports every year all the new varieties offered. One cannot grow everything and it is better to grow a few things well.

Arthur H. Fewkes mentioned the Salpiglossis, the Single Annual Chrysanthemum, and the small Single Marigold as annuals which should be in every collection. He sows pansies in August and transplants and before winter covers them with brush, and they are ready to flower as soon as the weather is warm enough in spring. By July the flowers are small, and he prunes them in and pinches out the flower buds and they flower abundantly in the fall. The colors of the Salpiglossis are very rich. They are best sown in March, and should first be established in small pots and then planted out in soil suitable for petunias. They do well in his soil, which is rather light and sandy but quite rich. It is well to water them in dry weather. They flower freely all summer.

William H. Badlam asked Mr. Faxon whether he had ever dug a trench twelve or eighteen inches deep and filled the bottom with manure, for sweet peas.

Mr. Faxon replied that he had not done so, but he thought this would be a good way. The sweet pea is a very gross feeder and needs a liberal manuring.

Mr. Badlam said that some of his friends have cast-iron rules; they must always plant sweet peas on Fast Day, and they pursue the plan which he had described, and always succeed.

Mr. Faxon said that they could not do otherwise than well.

Joseph H. Woodford said that for sweet peas he digs a trench two spades deep and fills in with manure and mixes with the soil so as to leave it two or three inches below the surface. On this he sows the seed, covering it an inch, and when the plants are up draws more soil on so that the ground is level when he sticks them. He puts in heavy sticks, as he must to support them. The flowers must be picked every day, or there will be no late ones. The object of all annual plants is to grow, flower, and perfect their seed, and when they are allowed to do the last they die and you get no more flowers. The first flowers of the aster are from the centre of the plant, and they are very fine; and if you

pick these you will get flowers from the side shoots. Pansies are fond of moisture and cool soil, and will bear the highest manuring if the manure is somewhat decomposed. He manures them highly in a trench with the coolest manure he can get. If the weather is very dry he would water with pretty strong liquid manure — not immediately around the plants, but would make holes between them and pour the manure in. He picks them because he wants them, but never lets them mature seed.

Mr. Faxon agreed with Mr. Woodford that it is very necessary to pick off the flowers of annuals as fast as they bloom; it is one great secret of success. If they make a few seed-pods it is too late to stop them. He recommended the Meteor and Prince of Orange calendulas.

It was announced that on the next Saturday W. A. Manda, gardener at the Botanic Garden of Harvard University, would read a paper on "Herbaceous Plants."

BUSINESS MEETING.

SATURDAY, February 19, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

The Secretary read a letter from G. B. Brackett, Secretary of the Iowa State Horticultural Society, enclosing the following memorial of the late Hon. Marshall P. Wilder, adopted by that Society at its meeting at Charles City, January 21, 1887:

Whereas, at the close of a useful life of more than fourscore years, during which he has been one of the foremost actors in all the great events of the age, spending more than half a century in the promotion of all that pertains to the art and science of Pomology and Horticulture, the Hon. Marshall P. Wilder has been called to his final rest in the heavenly paradise, by the pure river of the water of life, and beneath the tree of life which yields its twelve manner of fruits every month, and its leaves for the healing of the nations—

Therefore, *Resolved*, That we, the officers and members of the

Iowa State Horticultural Society, while we mourn our loss, will strive to emulate the example he has set us, practice the virtues that ennobled his character, and cherish his memory as one of the most useful and venerable of those engaged in our noble calling.

Resolved, That to him more than to any other is due the credit of placing the art and science of Pomology and Horticulture abreast of the other sciences of our country.

Resolved, That the Secretary be requested to furnish a copy of these resolutions to the American Pomological Society, the Massachusetts Horticultural Society, and the family of the deceased.

G. B. Brackett,
H. W. Lathrop, } *Committee.*
J. L. Budd,

Adjourned to Saturday, February 26.

MEETING FOR DISCUSSION.

Our Native Plants.

By W. A. Manda, Gardener at the Botanic Garden of Harvard University, Cambridge.

If we consider the large extent of this country, reaching from arctic Alaska to semi-tropical Florida; the high snow-clad mountains, the sloping hills and fertile valleys, the sunny plains and arid deserts, the rich bogs and still or running waters, with all the range and combination of the different climates included within its limits, we must necessarily expect to find a great variety of plants growing in those different natural stations and those various climates. And surely we are not disappointed in this expectation, for within the borders of the United States we find a very great number of species and varieties of plants, and these presenting such diversities of form, stature, and structure that they can be used for almost any ornamental purpose; while many of them are of great economical value.

With them we can plant our avenues, parks, and shrubberies, as well as borders, rockworks, and flower beds; with them we can make our gardens gay, and keep a succession of bloom from the time when the snow leaves the ground until it comes again in the late autumn; and if you have a greenhouse you can stock it either with foliage plants or flowering ones that will blossom the whole win-

ter through; or, by bringing in some of the earlier flowering kinds which force readily, you can enjoy their sweet and delicate vernal blossoms when other plants, in their natural condition, are still in deep slumber, covered with snow.

There is variety enough in store to suit all tastes and requirements, ranging all the way from the largest tree known to the smallest alpine plant, that does not grow above an inch from the ground; from the royal palm to the little modest violet; from plants that grow in water to those that flourish for several months without a drop of rain.

I do not intend to speak from a botanical point of view, for a botanist pays very little attention to the ornamental quality of a plant; he rejoices over the most insignificant weed so long as it is something new, that helps to fill the gaps in the natural system, and connect the plants one with another, as they are naturally related. But I am speaking horticulturally, in a company where plants are appreciated for their showy or fragrant flowers and the freedom with which these are produced; for their beautiful foliage as well as for their hardiness and robust growth; and, as we must take it for granted that, out of the some ten thousand species and varieties of our native plants, more than half are of some horticultural interest, and thus worthy of culture, we must rejoice over this large store of plants that Nature has provided for us; and try by cultivation and hybridization to improve some of the species.

It is self-evident that these native plants must be far better constituted to stand our variable and trying climate than any exotic plants can be. In Europe, and especially in England, these plants, native with us, are cultivated with great zeal and care, and already many varieties have been improved by careful selection, and several remarkable hybrids have been produced by crossing the different species. And so we can but wonder why they are not more cultivated in this country, as they plainly deserve to be.

In attempting to describe some of the best species and varieties, I think it will be proper to mention them not in botanical orders, but in classes, as they are adapted to cultivation; and the first class that claims our attention consists of the

Hardy Herbaceous and Perennial Plants.—Under this head we expect to find such plants as are not shrubby and whose stem generally dies down to the root annually, and whose growth is

continued from the same root for a series of years. In their wild state they are found growing on hills, in valleys, and on plains. They are by far the easiest plants to cultivate, as they will grow in any ordinary soil and situation. Only a very few require any shade whatever; even those that naturally grow in deep and shaded woods can stand the full sun in cultivation and are even more vigorous and floriferous than in their native haunts.

They can be propagated by different methods; the most natural one is that from seed, which should be sown in December or January, in pots or pans, and kept in a cool and dark place until it germinates. The young plants should then be transplanted into a light and cool greenhouse or frame, and subsequently, when large enough to handle, potted singly; and finally, in April, planted out in their proper places.

Plants of this class (except those that have long tapering roots) are also readily propagated by division. This operation should be performed in the autumn; the plants should be carefully cut so that each portion has a few good roots attached; then they should be planted in some light sandy soil in a cool frame, where they should be kept until spring, by which time they will begin to form fresh roots, and if then planted out will grow along without any interruption.

Another way of propagating is by cuttings; these must be taken from the plants just when they begin to grow or after flowering is over; using portions of the soft lateral branches. These cuttings should be inserted in pots or boxes filled with a mixture of sand and leaf-mould, and kept in a cool shaded frame until rooted, when they should be potted singly in three-inch pots, and finally planted out the following spring in the places where they are desired.

The hardiness of these plants cannot be judged by the number of degrees of frost they may endure in the winter, for changeable weather is more trying to them than the hardest frost, especially when the ground is covered with snow. I have observed many plants that stood the winter well, and had begun to grow in the early spring, and were then killed by even a slight frost. A light covering with either evergreen branches or Russia mats will be of great benefit to them; not that it will keep out the frost, but it will simply prevent the sudden thawing and freezing.

Some persons, and especially botanists, will maintain that these plants do not require any special nourishment beside what they

may draw from the soil they are growing in. This may be so in their natural stations, where they grow for years, dropping off a mass of stems and foliage annually which decays and forms the best and most natural nutriment for them. But the case is different in culture in our gardens, where for the sake of cleanliness any decaying leaves or stems are taken from them; and there a dressing of good well rotted manure is very essential to the well-being of this class of plants.

Among our hardy herbaceous and perennial plants we rate the Phlox as one of the best, for with the different species of this showy genus alone we could have flowers at all seasons. *P. subulata* forms a dense mass of rose colored flowers with pink eyes, in the earliest spring. From this species a good many garden varieties have been produced, such as *Nelsoni*, *atropurpurea*, *The Bride*, *nivalis*, and others, varying in the color of their flowers from the darkest purple to snow white. *P. amœna* is another beautiful vernal bloomer; it grows about three inches in height, and produces in May a profusion of purple flowers. Not less valuable is *P. ovata*, which sends up large heads of beautiful purple flowers, on stems from a foot to two feet high, in June. *P. maculata* produces pyramidal spikes of purple flowers; while *P. divaricata* has pretty bluish or lilac flowers on stems a foot high, and blossoms in May. A very neat and compact growing species is *P. glaberrima;* it grows a foot high, has long shiny foliage, and dense heads of pinkish flowers in June and July. *P. reptans* is a dwarf and neat species, never growing over six inches high; it produces large flowers in May. But *P. paniculata* is the best known and most widely cultivated; it grows from two to six feet in height. The type has usually purple (seldom white) flowers, in large and dense pyramidal spikes. Innumerable garden varieties have been produced from this species, presenting all colors from red to white. This species and its varieties flower from July to October.

The Rudbeckia, or Cone Flower, is another very valuable genus; the best species is *R. speciosa*, which grows from one to two feet high and produces a quantity of large flowers, the disk dark purple and the rays orange-yellow; it blooms in July and August. *R. maxima* is very striking on account of its ample glaucous foliage and the very large flowers, with very high black disks, and long yellow rays. It flowers in August. *R. subtomentosa* grows from three to four feet high and produces a large quantity of showy

flowers; the disk is brown and the rays are golden-yellow. Other very good species are *R. grandiflora*, *R. Californica*, and *R. mollis*, all worth cultivating—and more might be named.

Lepachys pinnata resembles somewhat the last named genus; it grows about three feet high, and produces a profusion of flowers in August and September; the disk is light brown and the rays are yellow.

All the hundred species and varieties of Pentstemon are showy, but unfortunately only a few will stand our winters, the genus being made up chiefly by natives of western and south-western states. Among the hardy kinds we have *P. diffusus*, which I consider the best one; it grows from twelve to eighteen inches high, and its large purple flowers are very freely produced from May to August. *P. pubescens* is another good species, with long spikes of pale violet flowers produced in May and June. *P. ovatus* is also worth growing; it flowers in June and July. *P. glaber* is a very showy and compact plant; the stems are a foot high, covered for the most part with very large blue or purple flowers. *P. lævigatus* and the variety *Digitalis* are showy plants, growing to the height of five feet; the flowers are white, in dense spikes. *P. confertus* has also a profusion of lilac flowers, although not very large. *P. barbatus* is one of the best for general culture; the leaves are shining, while the flowers, which are borne on long spikes, are deep red. There are several varieties, the best of which is *Torreyi*, more robust than the type, flowering later, and having darker flowers and larger branching spikes.

Closely allied is the genus Chelone or Turtle Head; of which three species are hardy, *glabra*, with white flowers, and *Lyoni* and *obliqua*, with rose colored flowers.

The Aquilegias, or Columbines, are very showy and deserving plants. I name first *A. chrysantha*, which grows three feet in height, and has long spurred golden flowers. *A. cærulea* has nearly the same structure, but the sepals are deep blue and the petals white, making it very ornamental. *A. formosa* and *A. truncata* have red flowers, while *A. brevistyla* has dark blue flowers. Not less noteworthy is *A. Canadensis* with its profusion of red flowers in the earliest spring, and although quite common in our woods very ornamental in cultivation. There are two other species, *A. flavescens* and *A. Jonesii*, which are at present very little known. Numerous hybrids of this genus have been produced in cultivation, but none are equal to any of the species.

Out of the several species of Anemone, or Wind Flower, only one, *A. decapetala*, can come into the class now under consideration. It grows a foot high, and has numerous cream colored flowers. The Hepatica, or Liver-leaf, is now classed among the Anemones. The two native species are very neat and compact plants, flowering in the early spring, and sometimes even under the snow. *H. triloba* has flowers varying from blue to white; and *H. acutiloba* pinkish or nearly white.

The Aconitum, or Monkshood, is also worth growing, especially *A. reclinatum*, with white flowers produced on arching stems, and *A. uncinatum* of the same habit but with blue flowers; both are autumn flowers, and thus more valuable, although not so showy as *A. Napellus*, which grows erect, and has very large blue or purple flowers.

Not less valuable is the Delphinium or Larkspur; there are several species with mostly blue flowers. *D. Menziesii*, *D. exaltatum*, *D. azureum*, *D. simplex*, and *D. tricorne* are among the best for ordinary culture.

Under the genus Coreopsis we find also many valuable plants, such as *C. lanceolata*, of very compact and dwarf habit, and producing a multitude of deep yellow flowers. *C. grandiflora*, *C. pubescens*, and *C. auriculata* are all similar to each other in habit, and not unlike *C. lanceolata*. *C. verticillata* grows eighteen inches high, has finely divided leaves, and numerous bright yellow flowers. *C. delphinifolia*, *C. senifolia*, and *C. palmata* are pretty much alike; they grow from one to three feet in height, have rather broad palmately divided or cleft foliage, and ample heads of bright yellow flowers. *C. rosea* is quite distinct, growing only six inches high, and having small rose colored flowers, while again *C. tripteris* may be easily mistaken for a sunflower.

Nearly all of the one hundred and twenty-four species and many varieties of Aster are worth growing, because they flower late in summer and autumn, when flowers are scarce. Especially showy is *A. turbinellus*, with slender stems from two to four feet high, and innumerable pretty violet flowers in October and November. *A. patens*, *A. lævis*, and *A. Shortii* are of similar habit and merit. *A. ptarmicoides* has large trusses of white flowers, on stems eighteen inches long, produced in midsummer. *A. Novæ-Angliæ* is quite showy and more known than any other species. *A. spectabilis*, *A. paludosus*, and *A. surculosus* are all of dwarf habit and have

large heads of violet flowers. Quite remarkable is *A. sericeus*, with silky foliage and lilac flowers. *A. multiflorus* and *A. ericoides* are also valuable, not on account of the size but the great quantity of their white flowers. Other very good species are *grandiflorus*, *diffusus*, *amethystinus*, *versicolor*, *azureus*, *Curtisii*, and *Radula;* and many others could be named.

The genus Solidago, or Golden-rod, includes a great many species which have, with one or two exceptions, all yellow flowers. Among the best ones are *S. Drummondi*, with arching and much branching stems; *S. speciosa*, about three feet high, slightly arching, and bearing large panicles of flowers; *S. Virga-aurea*, which varies in stature according to the locality where it grows; it has a large dense inflorescence, of bright yellow color; *S. rigida*, which grows three or four feet high, the stout stems terminated with dense panicles of large flowers: and *S. sempervirens*, which although common is quite showy, having shining foliage. This genus has seventy-eight species, besides many varieties.

Nearly as large a genus is the Erigeron or Fleabane. *E. bellidifolium* is quite common in our woods, but the western species and especially *salsuginosus*, *speciosus*, and *macranthus* are much more showy. They grow from one to three feet in height and produce numerous and large violet or whitish flowers.

Two species of Œnothera, or Evening Primrose, are notable; *Œ. fruticosa*, a foot high, with several ample yellow flowers, and *Œ. Missouriensis*, of trailing habit and with flowers of great size and beautiful yellow color.

A very pretty plant is *Cunila Mariana* or Dittany; this grows very dense, and produces a large number of purplish flowers in the autumn.

Another very noteworthy plant is *Asclepias tuberosa*, with stems one to two feet high and clusters of deep orange-red flowers. This plant does not like to be disturbed at the root.

Polemonium cœruleum and the white variety are quite showy when in bloom in June and July. *P. reptans*, a vernal species, grows only six inches high, making a mass of light blue flowers in May.

The Hydrophyllums also would be worth cultivating; the plants have either blue or white flowers, in the spring

The Thalictrum, or Meadow-Rue, is quite ornamental; *T. Cornuti* and *T. dioicum* have white and *T. Fendleri* yellow flowers.

The Hibiscus, or Rose-Mallow, is a showy genus, having flowers from four to six inches in diameter. *H. Moscheutos* grows four feet high, and has white or whitish flowers. *H. militaris* has somewhat similar flowers but is more floriferous. *H. grandiflorus* has red flowers.

A very valuable genus is the Baptisia or False Indigo, growing from two to four feet in height and producing large spikes of flowers in early summer. *B. australis* has blue flowers; *B. alba* and *B. bracteata*, white; while *tinctoria*, *perfoliata*, *lanceolata*, *simplicifolia*, *sphærocarpa*, and *microphylla* are yellow; and *villosa* and *leucophæa* have yellow and white flowers.

The Thermopsis is similar to the foregoing. All the six species have yellow flowers and all are worth growing. *T. Caroliniana* is the best of the genus; it grows about four feet high and flowers in June and July. The other species are *Californica*, *fraxinifolia*, *macrophylla*, *montana*, and *mollis*.

The genus Astragalus, with about one hundred and seventy species and varieties, is also horticulturally interesting, but at present they are only known by herbarium specimens, with the exception of *A. Canadensis*, which has yellowish flowers.

The genus Lupinus is also very numerous and most of the species are very ornamental; especially *perennis*, *maritimus*, *Nootkatensis*, *polyphyllus*, and *littoralis*, mostly with blue or purple flowers, but some are white or yellow.

Cassia Marilandica, the Wild Senna, is very ornamental on account of its large spikes of yellow flowers.

Out of the several species of Liatris, or Blazing Star, only *spicata*, *scariosa*, and *pycnostachya* are adapted to general culture. They are very showy, having long spikes of rose or purple flowers.

The Eupatoriums are also very numerous but are not all hardy. *E. purpureum*, with deep purple flowers in large clusters, and *E. altissimum*, *E. perfoliatum*, and *E. ageratoides* are very good plants.

The Boltonia, resembling the Aster but much larger, is a very valuable genus, of three species. *B. asteroides* grows from four to seven feet in height and produces an innumerable quantity of white flowers, while the rare *B. latisquama* is more compact and dwarfer but produces its beautiful lilac flowers with as much freedom as the former; the third, *B. diffusa*, is not much known.

The Monarda, or Horse-Mint, is a genus of showy and sweet-

scented plants, of which *M. fistulosa* has rose colored flowers; while *M. didyma* has deep red and *M. Bradburiana* purplish.

The same may be said of another genus, Pycnanthemum or Basil, which has flowers varying from white to purple, according to the different species.

Physostegia Virginiana grows from twelve to eighteen inches high, bearing spikes of large rose colored flowers.

Some of the Violets may be also mentioned, especially *Viola pedata*, with large lilac-purple flowers; and also the variety *bicolor*, which is much darker and prettier; and the chaste white form, which is occasionally found. *V. cucullata* is also very showy, having ample variegated flowers, but sometimes bearing blooms of unicolor purple or pure white.

Campanula rotundiflora, the Harebell, is a very beautiful plant, growing a foot in height and bearing numerous large flowers varying from the brightest blue to nearly white in color.

Gaillardia aristata is a very neat and showy plant with yellow flowers, but we have now in cultivation *G. grandiflora* and the variety *maxima*, the former with yellow and red, the latter with yellow flowers, very large and showy and produced in great quantity. Both of these are only varieties of *G. aristata*, showing plainly how much a plant can be improved if cultivated for a time, and propagated from seed saved always from the best flowers.

The Echinacea, or Purple Cone-flower, is also very showy on account of the large heads of purple flowers produced by *E. purpurea* and *E. angustifolia*.

For very tall plants we have the Helianthus or Sunflower, of which there are several species, all growing from four to twelve feet in height and having large yellow flowers. *H. rigidus* is the dwarfest, never exceeding four feet in height, and has large showy heads. *H. mollis* grows very compact, four to six feet in height, and produces rather large flowers. *H. lævigatus* grows from five to eight feet high and has numerous pretty flowers, altogether smaller than those of others. *H. decapetalus* has broad leaves and ample flowers. From this species it is surmised that *H. multiflorus* originated; if that be so we have another good proof of how a plant can be improved. *H. multiflorus* has flowers more than twice the size of the supposed type. In cultivation we see mostly the double variety, which is not so showy nor so pretty as the single one. *H. orgyalis* is very striking on account of its

long, narrow leaves and bright yellow flowers. *H. doronicoides* and *H. strumosus* have large and very showy flowers, while for size of the plant we have *H. giganteus*, *H. tuberosus*, and *H. Maximiliani;* all of the last three growing from eight to twelve feet high, and even higher.

Another tall growing genus is the Silphium or Rosin-Plant. There are several species; the most remarkable is *S. laciniatum*, the Compass Plant of the prairies, which is said to have the peculiarity of turning the edges of its lower leaves north and south; but this is not observed in cultivation. This plant grows from six to twelve feet high and has large yellow flowers. Another showy species is *S. perfoliatum* or Cup-Plant; it has square stems, six to eight feet high, and numerous large flowers of deep yellow color. Other very valuable species are *integrifolium*, *terebinthinaceum*, *trifoliatum*, *Asteriscus*, and *asperrimum*, all with yellow flowers, and *albiflorum* with white flowers.

The *Vernonia*, or Iron-weed, grows also from six to ten feet in height, and has large clusters of deep purple flowers. Some of the best species are *Arkansana*, *Noveboracensis*, *altissima*, and *fasciculata*.

An early flowering plant is *Sanguinaria Canadensis* or Bloodroot, with its snow-white blossom.

Waldsteinia fragarioides sends up at the same time a great profusion of yellow flowers.

Geum triflorum also flowers in the early season, and is followed by curious seeds; while *G. radiatum* produces its golden flowers in June.

Linum perenne has very pretty blue flowers.

Hypericum pyramidatum produces large spikes of ample yellow flowers.

Podophyllum peltatum, or Mandrake, has large leaves, and large nodding white flowers in May.

Stylophorum diphyllum, the Celandine Poppy, is also very ornamental, with its large yellow blossoms.

Lobelia syphilitica grows about eighteen inches high and bears large spikes of blue flowers, while *L. splendens* has the same habit, and deep red flowers.

Very ornamental are also the herbaceous species of Spiræa, such as *S. Aruncus* or Goat's Beard, which forms plants three to four feet high, and has large spikes of white flowers; and *S. lobata*,

commonly called Queen of the Prairie; this grows about eighteen inches high, and produces very showy clusters of deep pink flowers. Many other valuable plants belonging to this class should be mentioned, but as this is only a brief review space must be reserved to do justice to other classes.

I must now pass to the

Alpine and Rock Plants.—This title will cover plants that may be cultivated out of doors, but which require special situation, soil, and protection. First, we have the Alpine plants proper, or those that are found growing at high altitudes, generally among or upon rocks, exposed to breezes of pure and cool air, and subjected to a perfect rest for more than six months in the year. They are all delicate plants of neat habit, and exceedingly difficult to cultivate, even in our Northern States, on account of the hot summer seasons, while in the South they could not be kept alive, any more than we in the North could keep tropical plants through our severe winters.

The ground for growing these plants must be raised above that surrounding it, and should consist of good light loam mingled with leaf-mould and sand; and in this should be set larger and smaller pieces of sandstone or limestone, so as to imitate as far as possible, on a small scale, the conditions of some mountain regions. It should have a northern exposure; while the south side should have some means of protection against the fierce rays of the sun, but should not by any means be under trees, as these plants require all the light and air they can obtain, although sensitive to the heat. The propagation of these plants is effected in the same ways as recommended for hardy herbaceous plants, but it is a much more difficult and often a disappointing work. Being small and delicate plants, they do not require any manure, beyond a good mulching of well decayed leaves in the autumn.

Covering either with evergreen branches or other light material is necessary to the well being of these plants. This should be done after the ground has frozen somewhat, so as to keep these plants in a perfect and uniform rest; otherwise, if covered too early, the plants may start to grow several times during the winter, and thus exhaust themselves; or they may be liable to damp off.

In the second division of this class we have plants that are not Alpines but for some reason must be grown with them, to ensure

success. Some may grow among rocks or stones, and thus require to be grown like Alpines, but are much easier to grow and propagate; then again we have some plants that are small and delicate, or grow only in certain situations, and therefore cannot be grown successfully under general culture; while others being natives of Southern or Western States are not hardy under ordinary circumstances, but if planted and protected in the same way as Alpine plants they will flourish well, and thus many valuable and showy plants will be added to the list of those for out-door culture in our climate.

Precaution must be taken that no such plants be admitted among alpines as have running rootstocks, which spread with rapidity among the stones, overrunning the more delicate plants; and as it is much more difficult to keep a place clean where these rootstocks have worked in than ordinary ground, it is sometimes necessary, in such cases, to take up the stones and clear up every particle of roots, to get rid of such an intruder.

Among the valuable Alpine and Rock Plants we have the *Anemone alpina*, which grows about a foot high, with very large white flowers; *A. narcissiflora*, eight inches high, with from three to five white flowers on a stem; *A. nemorosa*, a pretty vernal bloomer, with white flowers; *A. multifida*, having small purplish flowers, and *A. patens* var. *Nuttalliana*, which has large purplish and yellow flowers.

Delphinium nudicaule has a tuberous root, grows six inches high, and has red flowers. *D. cardinale* has flowers of the same color, but they are much larger and are produced on branching stems four feet in height.

The genus Saxifraga includes many valuable plants, such as *S. oppositifolia*, of trailing habit, and covered with large purple flowers in the spring, and *S. aizoides*, of a sedum-like habit, and having yellow flowers. *S. cæspitosa* forms large masses of bright green foliage, and white blossoms in early spring; while *S. Aizoon* and *S. flagellaris* form neat rosettes with their thick leaves. The common *S. Virginica* is also showy in the early spring, when it produces great quantities of white flowers.

The little *Thalictrum anemonoides* is very pretty.

Trollius laxus has large pale yellow flowers.

Rhexia Virginica is a very beautiful plant; it grows six inches in height, and has large purple flowers. There are several species of this genus, all worth cultivating.

A very beautiful plant is the *Zauschneria Californica*, which grows over a foot high, and bears numerous red flowers.

The genus *Arnica* is quite interesting, and among the several species we find *alpina*, *foliosa*, *longifolia*, *amplexicaulis*, and *Chamissonis;* all with large bright yellow flowers.

Campanula divaricata is very pretty with its innumerable blue flowers.

The Dodecatheon, or Shooting Star, is a beautiful plant; the only species is *D. Meadia*, with several varieties. It grows a foot high, and produces umbels of showy flowers varying from pure white to the darkest purple.

The Marshallia is a genus of four species, *cœspitosa*, *latifolia*, *lanceolata*, and *angustifolia*, all of dwarf habit, and producing white or rose-colored heads of flowers not unlike those of a Scabiosa.

Quite a valuable plant is the *Spigelia Marilandica*, growing over a foot in height, and bearing large red and yellow flowers in the early summer.

Polemonium humile, more known under the name of *P. Richardsonii*, is a very pretty plant with numerous blue flowers in large spikes.

Hydrophyllum capitatum is pretty on account of its heads of lilac flowers.

Phlox Stellaria is a showy and floriferous plant with light rosy flowers.

The delicate genus Primula, or Primrose, is represented by several very neat species. *P. Mistissinica* grows only four inches high, and has rose colored flowers. *P. farinosa* is a stronger grower, and has flowers of the same color but larger. *P. suffrutescens* has somewhat woody stems, and thick, whitish leaves. The flowers are larger, and of beautiful purple color. The best species is *P. Parryi;* it has large thick leaves, and the stem bears several large flowers which are crimson with bright yellow eyes, thus making it very striking.

Iris verna and *I. cristata* are two beautiful plants.

Not less valuable is the closely allied *Sisyrinchium grandiflorum*, usually with dark purple flowers, but a pure white variety of this is sometimes found.

A very delicate plant is *Eritrichium nanum*, with a profusion of sky-blue flowers.

Cedronella cana has scented foliage, and spikes of purple flowers.

Quite showy is *Uvularia grandiflora*, with yellow bell-shaped flowers, produced in great abundance in the early spring.

Solanum Torreyi is a rare and beautiful plant two feet in height with large violet flowers.

Ipomœa leptophylla has a very large tapering root, stout trailing stems, and large pink flowers.

The genus Mertensia or Lungwort is represented by seven species, all very beautiful plants, with clusters of purple or blue flowers. One of the best and also the most known is *M. Virginica* with purple flowers; but *M. paniculata*, *M. oblongifolia*, *M. Siberica*, *M. lanceolata*, *M. maritima*, and *M. alpina* are equally valuable species.

Another showy genus is the Silene or Catchfly, with numerous species. Among the best we have *S. Pennsylvanica*, with ample pink flowers, produced in great profusion; and *S. Hookeri* with rose colored flowers; while *S. rotundifolia*, *S. Virginica*, and *S. regia* have large scarlet flowers. Very pretty is the moss-like *S. acaulis* with ample rose colored flowers.

Dianthus alpinus is a nice little plant with purplish flowers.

Quite a gem is *Papaver nudicaule* with its large and showy yellow flowers

Aster alpinus has very large heads of violet flowers.

Solidago Virga-aurea var. *alpina* has large clusters of yellow blossoms.

Dryas octopetala has whitish foliage and snow white flowers.

A beautifnl genus is the Gentiana, with nearly fifty species and varieties, but most of them are known only from herbarium specimens. *G. Andrewsii* has large clusters of blue flowers, that never open. *G. Saponaria* has also blue flowers and so have *G. calycosa* and the showy *G. angustifolia*; while *G. alba* has flowers of a white or greenish color.

Swertia perennis somewhat resembles the last genus, and has blue flowers.

Very floriferous and showy is the *Chrysogonum Virginianum*, with ample yellow flowers.

A plant of sterling merit is *Stokesia cyanea*, with numerous and very large flowers of beautiful lilac color.

Mimulus cardinalis grows about eighteen inches high, and bears many large red flowers

Some of the Pentstemons can also come under this heading.

P. Cobœa has the largest flowers of the genus; they are of purple color and sometimes even three inches long. *P. grandiflorus* has glaucous foliage and large spikes of dark purple flowers; while *P. secundiflorus*, of nearly the same habit, has lilac flowers, and *P. centranthifolius*, with shiny leaves, has long spikes of bright red blossoms.

Very little known are *Hesperochiron Californicus* and *H. pumilus*, both of very dwarf habit and producing great quantities of large white flowers.

Ruellia ciliosa is a good plant, with large flowers of pale blue color.

A remarkable plant is the *Lewisia rediviva*, which has a long root, fleshy leaves, and large beautiful rosy blossoms.

The Parnassia has thick shining leaves, and whitish flowers.

Several species of Houstonia are very ornamental from the multitude of their blue or white flowers.

The Callirrhoe is a beautiful genus of trailing plants; the best species are *linariloba* and *involucrata*, both with large purple flowers.

Linnœa borealis, or Twin-flower, has trailing branches, which when covered with their purplish flowers present such a pleasing sight that we cannot wonder at the fondness shown by the celebrated Linnæus for this little plant; which was afterwards named in his honor.

The beautiful genus Trillium consists of several species and varieties, all producing large and showy flowers in the early season. *T. grandiflorum*, with erect large white flowers, is decidedly the best; while *T. cernuum* and *T. erectum* have the same colored, but nodding flowers. *T. sessile* has dotted foliage and reddish blossoms. *T. erythrocarpum* has white and purple flowers. *T. pusillum* and *T. nivale* are dwarf little plants, the former with rose colored flowers; the latter with white. *T. ovatum* is said to have white, *T. stylosum* rose, and *T. petiolatum* purple blossoms.

Anemone Pennsylvanica, *Œnothera speciosa*, and *Conoclinium cœlestinum* are all showy plants, but they are objectionable on account of their running underground stems, to which I have already alluded; yet where a suitable place can be had they should be grown, because they do not require such care to bring them to perfection as alpine plants do.

And now we come to the

Water and Bog Plants. — This class owes its name to the wet character of the positions in which the plants are found natu-

rally growing, conditions from which we cannot much depart in our culture. Among the Bog Plants we find quite a variety from different families, while the Water Plants proper belong chiefly to the Nymphæaceæ. These plants are very valuable to the cultivator, as with them he can beautify unsightly, marshy grounds, as well as add beauty to ponds or streams of water. Where there is no such place naturally, an artificial one can be made by excavating a basin in the lowest part of the garden, in which water will collect, or may be introduced by artificial means.

All plants belonging to this class delight in rich soil, and the full benefit of light and sun. They are propagated from seed and by division of the roots. In the case of water lilies, when it is desired to sow them directly in a pond or lake, the seeds may be put into a small ball of clay, and then dropped into the water.

To ensure good flowering the water lilies should not have more than one and a half feet of water over their roots in summer; while from two to four inches is quite sufficient for any bog plant. But in the winter deep water is very advantageous, as it prevents the frost from penetrating to their roots, and forms the best protection that can be given them.

The queen of all water plants is certainly the Nymphæa, or Water Lily. First we have *N. odorata*, with its beautiful, large, fragrant flowers of pure white color; then comes the variety *minor*, similar to the type, but with smaller flowers; and then again the gem, the rare rose colored variety, which is a beautiful acquisition. *N. tuberosa* has very large leaves, usually standing straight above the water, while the flowers, which measure as much as nine inches in diameter, are snow white. There are two more species described, namely, *ampla* and *elegans*, both natives of Southern States, and said to have white flowers. I have not seen or grown either of the two, and doubt whether they would be hardy here.

The Nuphar, or Yellow Water Lily, is a similar genus of valuable plants. *N. advena* has large leaves, mostly raised above the water, and cup-shaped flowers of a yellow color, sometimes striped with red. *N. luteum* has floating leaves and ample yellow flowers, while *N. pumilum* looks as if only a smaller form of the foregoing. *N. sagittifolium* has arrow-shaped leaves and flowers of bright yellow color. The Western *N. polysepalum* has the largest flowers of this genus.

Nelumbium luteum, or Sacred Bean, is a remarkable plant, with large roundish leaves usually standing straight above the water, and with flowers of a yellow color.

Calla palustris is not unlike a small Calla lily of our greenhouses.

Arisæma triphyllum, better known as Jack-in-the-Pulpit, is also very ornamental.

The different species of Veratrum are very showy on account of their large bright green foliage, presenting a tropical appearance.

Pontederia cordata has large spikes of blue flowers.

Caltha palustris, or Marsh Marigold, is very ornamental with its numerous and large golden flowers. *C. leptosepala* is a Western species with white flowers.

Asclepias incarnata grows two or three feet in height, and produces clusters of rose colored flowers.

Symplocarpus fœtidus may be objectionable on account of its peculiar smell, but its large leaves and curious flowers are quite striking.

Lobelia cardinalis is quite familiarly known by its large spikes of deep red flowers.

Several species of Iris belong to this class, namely, *I. versicolor*, with large blue and purple flowers, and *I. cuprea*, which produces very freely its reddish-brown blossoms.

Saxifraga peltata sends up large roundish leaves, and heads of showy flowers of rose color.

Acorus Calamus, or Sweet Flag, is also very ornamental, more on account of its bright green foliage than its flowers.

The genus Sagittaria includes several species with arrow-shaped leaves and spikes of white flowers.

Alisma Plantago var. *Americana* is also a good plant, having large spikes of numerous white flowers.

Typha latifolia and *T. angustifolia* are also striking plants, with their long foliage and curious spikes of blossoms.

Helonias bullata is a pretty little plant, with rose colored flowers.

The Utricularia, or Bladderwort, is a genus of several species of mostly floating plants, having flowers usually yellow.

Vallisneria spiralis, *Orontium aquaticum*, *Xanthosoma sagitti-*

folium, *Peltandra Virginica*, and others belong to this class, which we leave now to examine the

Bulbous Plants. — This class derives its name from the thick and succulent body called the bulb, that serves as a store from which the stem partly draws its support. Most of the plants belonging to this class are interesting, while many are of great beauty and merit. They vary greatly in size of flowers, as well as in general appearance, and being distributed all over the States they cannot be successfully grown under any uniform treatment in our gardens.

The ground for the majority of bulbs should be well drained, and should consist of light loam, leaf-mould, and a good sprinkling of sand; a thin layer of sand on which the bulbs are placed when planted is advisable, as it will secure them from excessive wet, and thus prevent their possible decay.

The hardy kinds will grow without much trouble in open places. The half-hardy bulbs do not require any artificial heat whatever, but a good rest after they have finished their growth is all they need; that is, the grower must withhold water from October until the early spring, and for this reason they have to be grown in cold frames, with only sufficient protection to keep out the frost. And I do not doubt that a great many plants which we have to grow under glass would prove hardy if we could keep the ground dry in the winter. The greenhouse kinds require the same treatment as any ordinary plants under glass; only they must have a marked season of growth and rest.

Like other plants they are propagated from seed, which grows easily; they are also propagated from bulblets that form around the main bulb; these should be taken off and planted in a place prepared for their reception until they reach flowering size; which is accomplished in much less time than is required when the plants are raised from seeds. Another way of propagating is by division of the bulb, but this is only practicable with kinds that have scaly bulbs, such as lilies. A time should be taken for this operation when the plant is at perfect rest; the scales may then be taken off and inserted in pots or boxes filled with a mixture of sand and leaf-mould or peat. In this way the scale will soon callous, and form a small bulb at the lower end, which after it is properly developed may be planted in the same way as directed for bulblets.

The most beautiful genus is Lilium, which is much more valua-

ble because all its members may be cultivated out of doors. *L. Philadelphicum*, which is found on hills, grows two feet in height, bearing large and erect orange-red flowers in July. Of similar habit is *L. Catesbœi*, but the flowers are larger and more open, of red and yellow color. *L. Canadense* grows from two to four feet high, and bears several large nodding flowers, either red or yellow, with numerous spots. *L. Columbianum* grows about three feet in height, and has smaller nodding flowers of bright deep orange color. *L. Humboldtii* is one of the most beautiful species, attaining four or five feet in height, and bearing numerous very large nodding flowers. The inner portion is red, while the ends of the petals are deep yellow. *L. parvum* has pretty, erect flowers of deep yellow color and marked with numerous small spots; it grows from two to three feet in height. *L. Washingtonianum* has stems from four to eight feet high, and large sub-erect flowers, white at first, but turning to deep rose and dotted. This beautiful plant has the further great merit of being very fragrant. Of the same habit is *L. rubescens*, which is sometimes considered only a variety of the former; it has nearly erect flowers of beautiful lilac color, changing to purple. *L. Parryi* grows about three feet in height, and bears several large horizontal flowers of primrose yellow color, slightly spotted. The very rare *L. Grayi* has stems two feet in height, with several horizontal flowers, red with large dark purple spots. The rather common but not less beautiful *L. superbum* grows as high as six feet, and sometimes produces even as many as thirty of its large, nodding, red and yellow flowers, which vary greatly in their markings. *L. pardalinum* is a showy plant, growing from four to eight feet in height, and bearing large spikes of its ample and nodding blossoms, which are yellow and red. *L. maritimum* is said to have horizontal, bright red flowers, but I have never seen more of it than a painting. These last-named three species are an exception, as regards culture, to bulbous plants in general, because they require to be grown in wet ground; which is quite contrary to the rule for other plants of this class.

The Erythronium, or Dog's-tooth Violet, is a genus of pretty and neat plants with variegated foliage and ample flowers. *E. Americanum* is quite common in our woods; it has bright yellow flowers. *E. albidum* has white flowers, while *E. propullans* is bright rose. *E. grandiflorum* bears several flowers varying in color from yellow to pure white, or tinted with purple. *E. pur-*

purascens is also a showy plant, bearing several yellow and purple flowers, while *E. Hartwegii* has flowers of orange color. All of this species are hardy plants.

As for the half hardy kinds, we have the Calochortus, a genus of thirty-two species and several varieties, including Cyclobothra, formerly considered a separate genus. All the species are worth growing for the sake of their large and beautiful flowers of different colors. *C. pulchellus*, *Benthami*, *Weedii*, *Kennedyi*, *luteus*, *clavatus*, *aureus*, *fuscus*, and *flavus* all have yellow or orange flowers, more or less tinted with purple or brown, while *C. spatulatus*, *Bonplandianus*, *Gunnisoni*, *macrocarpus*, *Palmeri*, *flexuosus*, *splendens*, *Greenei*, *uniflorus*, *lilacinus*, and *cœruleus* have flowers either lilac or purple, with yellow spots or bands; and the remaining *C. albus*, *Maweanus*, *elegans*, *Tolmiei*, *nudus*, *apiculatus*, *nitidus*, *venustus*, *Nuttallii*, and *Ghiesbreghtii* have white flowers, tinted with lilac and spotted with purple or yellow.

The Fritillaria is a genus of several species, but with the exception of a few they are not much known. *Fritillaria pudica* has large bright yellow flowers on short stems, and *F. recurva* has several ample flowers on a stem a foot high, of a beautiful scarlet color. Both are adapted for frame culture.

Amaryllis Atamasco and *A. Treatei* are two beautiful plants; the former with white, the latter with large rosy flowers.

Milla biflora is another beautiful plant, with large open white flowers.

Camassia esculenta and *C. Fraseri* have spikes of pretty blue flowers.

The genus Brodiæa consists of several showy species; *B. coccinea*, now called Brevoortia, is the best of all; it has large scarlet flowers. *B. volubilis* is a remarkable plant on account of its twining stem, which is sometimes as much as twelve feet long, bearing a head of rose colored flowers. *B. crocea*, *gracilis*, and *ixioides* have yellow flowers. *B. lactea* is nearly white, while *B. grandiflora*, *minor*, *laxa*, *Bridgesii*, *peduncularis*, *Douglasii*, *capitata*, *terrestris*, *congesta*, and *multiflora* have purple or blue flowers.

Among the greenhouse kinds we notice the *Hesperocallis undulata*, with large bulbs and a stem bearing several large pure white flowers that are equal to the well-known Eucharis.

The genus Pancratium, or Hymenocallis, is represented by sev-

eral species, all good and showy plants, having large umbels of ample, pure white, very fragrant flowers. *P. maritimum*, *coronarium*, *rotatum*, *occidentale*, and *nutans* all require greenhouse culture.

Leaving this class, we come to the

ANNUALS, or such plants as spring up, flower, perfect their fruit, and perish within a year; but as in every rule so here we find exceptions. Some plants present in cultivation the same characteristics as annuals proper, but in their native places and conditions they are either biennials or even true perennials.

Many very ornamental and showy plants belong to this class, and being mostly of easy culture they are oftener seen in our gardens than other plants; yet there are many valuable kinds that would be desirable additions to the list of those already cultivated.

They are propagated mostly from seeds, although some may be propagated by cuttings; the former method is the best and the one generally practised. The seeds should be sown in March, either in the greenhouse or hot-bed frame, and the young plants, when large enough, should be potted in small pots, and at the end of May planted out. Where there is no such accommodation, the seed could be sown out of doors in the latter part of April or the beginning of May; but in this way the majority of plants would flower rather late.

A very good way is to sow the seeds of such plants as *Phlox Drummondi*, and several others, in July or August, and keep the plants over winter in a cool frame, such as is ordinarily used to winter the Pansy. If treated in this way they could be planted out in April at the time they begin to flower, and would continue in bloom the whole summer. All plants of this class require good, rich, well-drained soil, and the full benefit of light, air, and sun.

Among the cream of Annual Plants we have *Phlox Drummondi*, with its numerous varieties of almost every color.

We next mention *Gaillardia picta* and *G. amblycodon*, with their large reddish flowers.

All the species of Coreopsis are very showy, such as *C. Drummondi*, *C. cardaminifolia*, and *C. tinctoria*, and all have yellow or yellow and red flowers.

The genus Nemophila includes many beautiful and delicate ver-

nal species mostly with white or rosy flowers; *maculata*, *insignis*, and *atomaria* are the best of them.

Vinca rosea and the varieties *alba* and *alba-oculata* are very showy plants with bright green foliage and numerous large flowers.

The genus Gilia numbers a great many species and varieties, the best of which are *G. capitata*, *G. multicaulis*, *G. congesta*, *G. achillæfolia*, and *G. coronopifolia*, all of different purplish hues.

Helenium tenuifolium is a quite showy plant, two feet in height and bearing numerous yellow flowers.

Verbena Aubletia and *V. hastata* have a profusion of purple blossoms all through the summer.

A very showy and pretty plant is *Xanthisma Texanum*, which grows from two to three feet high and bears numerous large flowers of the purest yellow color.

Stevia Plumeræ is very floriferous.

The genus Collinsia consists of several pretty spring flowering species, such as *bicolor*, *bartsiæfolia*, *verna*, and *grandiflora*, all with white and purple flowers.

The *Martynia* is well known for its showy flowers and curious seeds.

In *Ipomea purpurea* we have a climbing plant of great beauty.

Everybody is familiar with the stately *Helianthus annuus*.

The genus *Phacelia* is quite extensive and embraces many showy plants, of which *P. Whitlavia*, with purple flowers, is the best that I know.

Amongst the several species of Œnothera, or Evening Primrose, especially notable are *Drummondi*, *bistorta*, and *triloba*; all with large showy, yellow flowers.

The genus Godetia deserves to be more extensively grown than it is at present. All its species have large and showy flowers, of colors varying from pure white to the darkest purple; *amœna*, *grandiflora*, *Romanzovii*, *viminea*, and *lepida* are the best.

Rudbeckia hirta, which we find in our fields, is quite ornamental in cultivation.

Gaura Lindheimeri, with its white flowers, is perhaps more cultivated than many others.

Very neat in habit are *Clarkia pulchella* and *C. elegans*; with large purple, sometimes white, flowers.

But the most beautiful and a rather rare plant is *Lepachys*

columnaris, with stems two feet in height, and a number of large heads; the disk is high and purplish; while the rays are yellow. A fine variety of this is called *pulcherrima*; it has the same habit, except that the rays are partly reddish-purple, making it one of the most showy and striking plants. In these last-named two plants we have the exception I have previously alluded to, namely that of plants which are real perennials in their western home, but here must be treated only as annuals.

And now we will see what we can find among the

ORCHIDS.— This class is named after the natural order that the plants belong to. They are all of nearly the same habit and as a rule have showy and very curious flowers. With only two exceptions (where the plants are real epiphytes) all of our orchids are terrestrial, growing in moist and shaded woods or open meadows. Some species are found only within very narrow limits; so that it takes an expert collector to find out the home of some of the rarer kinds.

Some orchids have thick succulent tubers which are renewed annually, while others have creeping rootstocks. As a general rule they are rather difficult to cultivate. They require to be grown in peat and leaf-mould, and must have perfect drainage. The best time for transplanting those that have rootstocks, such as the Lady's Slipper, is just before they begin to grow. Those with tubers should be taken up just when they commence flowering, because at that time they begin to form the new tubers; and if taken later, when fully grown, the brittle roots would be easily damaged and the plant might never recover. The place for these plants should have a northern exposure and be partly shaded and never allowed to get really dry; it should also be covered in the winter, to keep out the hardest frost. The best way of obtaining native orchids is to go to the woods and dig them; and plant them with the rest in the garden. They could be propagated by division, but as they generally decrease in cultivation, and on the other hand have seeds so minute that they are very difficult to make grow and raise good plants, I do not see any other method than the first one mentioned.

First we have the two epiphytes, *Epidendrum conopseum* with purple and green flowers, and *E. venosum* with greenish flowers. Both require to be grown in a greenhouse, in the same way as other tropical orchids.

Among those for ordinary culture, we have *Orchis spectabilis*, four inches in height, with four or five white and purple flowers on a stem.

Arethusa bulbosa has flowers two inches long, of beautiful purple color.

Another beautiful little plant is *Calypso borealis*, with large pink and yellow flowers.

The genus Habenaria consists of several species, all having large spikes of flowers, differing in color. Thus *H. dilatata*, *H. blephariglottis*, and *H. orbiculata* are white; *H. psycodes* and *H. fimbriata*, purple; *H. hyperborea* and *H. Hookeri*, greenish; *H. ciliaris* and *H. integra*, orange; and *H. cristata*, yellow.

Calopogon pulchellus has very neat pink flowers with yellow lines on the lip.

Several of the Spiranthes, or Ladies' Tresses, are pretty plants, with white flowers in a dense spike; *gracilis*, *cernua*, *graminea*, and *simplex* are some of the species.

Epipactis gigantea is a showy plant resembling a Cypripedium; the stems are one foot or more in height, with several large white and purple flowers.

The Goodyera is a genus of four species with very ornamental leaves, besides the white flowers; *G. repens* has small velvety green and white leaves: near to it is the Southern *G. quercicola*, very little known at present. *G. pubescens* is perhaps the best of all, having large dark leaves with numerous white veins; and of about the same size we have *G. Menziesii*, with dark green leaves and a large white band in the middle.

Bletia verecunda and *B. aphylla* are two showy plants, with large spikes of ample purple flowers.

Now we come to the best of the Orchids, namely, the Cypripediums or Lady's Slippers. They are not only the showiest, but also the easiest to cultivate. The most common is *C. acaule*, with large flowers, usually purple, but occasionally pure white varieties are found. *C. pubescens* and *C. parviflorum* are pretty much alike, both having large, showy yellow blossoms, produced singly or in pairs. *C. arietinum* has neat little flowers of purplish color. *C. montanum* bears from one to three white and brown flowers. *C. candidum* is a neat species with white lip. *C. Californicum* has stems with as many as six flowers of light rose and yellow color. The best species is *C. spectabile*, with stems two feet high,

bearing as many as three very large flowers of a rosy color; some are pure white, while purple varieties also occur. This beautiful plant equals if it does not exceed any of the greenhouse kinds which are cultivated with considerable expense. A new species has been recently discovered in Washington Territory, and named *C. fasciculatum*. But I must not dwell too long on my favorites, but pass to a still more curious class, that of

Insectivorous Plants. — This consists of only a few plants, characterized by a peculiar structure of their leaves which serves to capture the insects. The leaves are either hollow, not unlike a narrow pitcher, as in Sarracenia and Darlingtonia, or are furnished with sensitive bristles serving that purpose, as in Dionæa or Drosera. Many naturalists maintain that the captured insect is digested by the secreted fluid, and serves as nourishment for the plant. Yet if we examine the pitchers of Sarracenia, we shall find that those filled with insects decay much sooner than those that have few or none; and again in the case of Dionæa, a leaf that has captured a rather large insect seldom opens again, but decays, while leaves that have not captured any or only small insects will remain healthy the whole season. Again if a leaf be selected and touched with some small object, it will close just the same as if an insect had come in contact with it, and if that operation were to be repeated as soon as the leaf opened, and so kept up for some time, the bristles and leaves would lose their sensitiveness, and the leaf would not close in response to either stimulus. All this shows that the plant cannot benefit by the insect; on the contrary the insect hurts it, by irritating the sensitive parts. We cannot say that these plants were made to capture insects, but only that they do capture them so because they have that peculiar construction. However, as this is only a matter of opinion, I will return to a brief description of the several Insectivorous Plants.

Dionœa muscipula, or Venus's Fly-Trap, has thick bright green leaves, terminated with appendages which are furnished with a few bristles on the inner surface; when these are irritated the leaves close suddenly and remain closed for a time. Its rather large white flowers are borne on stems from six to eight inches in height. It grows in the pine barrens of North Carolina, and should be treated in the same way as above recommended for orchids.

The Sarracenia, or Side-saddle Flower, is a showy and orna-

mental genus of several species. *S. purpurea*, which grows farther north than any other, is a pretty plant with dark purple flowers. This plant is perfectly hardy, and succeeds with the same treatment as has been recommended for bog plants. *S. flava* has erect trumpet-like leaves, sometimes over three feet high, and large yellow flowers; it is hardy if treated like the foregoing and covered up in the autumn. *S. Drummondi* attains the same height, but its pitchers are beautifully mottled and striped with white and purple, while the flowers are red. *S. undulata* is only a variety of *S. Drummondi*, with the half-curved lid. *S. psittacina* has reclining pitchers of green and white, and dark purple flowers. *S. rubra* and *S. Sweetii* are much alike; they have small narrow pitchers and red flowers. *S. variolaris* has sub-erect inflated pitchers, and yellow flowers.

The last named six kinds must be grown in a cool greenhouse, in pots filled with rotten leaves and sphagnum moss. Of this genus more than a dozen hybrids have been produced in English gardens by crossing the different species, and later the hybrids themselves.

The Drosera, or Sundew, is represented by several small plants with white flowers. They can be grown with good success in the same way as bog plants. *D. rotundifolia*, *D. filiformis*, and *D. longifolia* are among the hardiest and best adapted for culture.

Darlingtonia Californica is a very beautiful plant, nearly related to the Sarracenias. It has pitchers over two feet in height, terminating in a kind of hood, with two appendages. The flower is large, of yellow and purple color. The culture is the same as directed for greenhouse Sarracenias.

Next we have the

Succulent Plants. — In some portions of the southwestern part of this country large tracts of land, consisting of very poor sandy soil, and at times without any rain for several months, would be quite destitute of any vegetation if it were not for this class of plants. On such a soil is their home, and there they flourish, being furnished by all-providing Nature with thick and succulent stems and leaves, which serve them as storehouses from which to draw their subsistence in the dry season. Their form and structure are quite striking and ornamental, and besides they have very large, beautifully colored flowers, which I regret to say are of short duration.

They are of very easy culture, the main point being to avoid

any excessive wet; this applies to the hardy as well as the greenhouse kinds; to the latter belong the larger part of this class. Good turfy loam is the best material in which to grow them, and good drainage is indispensable. They are propagated from seed, by division, and from cuttings, in just the same way as any ordinary plants, save that they must be kept rather dry.

We have quite a variety of Succulent Plants. Out of the some forty species and varieties of Cereus, especially noteworthy is *C. giganteus*, which grows from forty to sixty feet in height, and must produce a peculiar effect when seen in its native haunts. Under cultivation we seldom see any large specimens. *C. Thurberi* has a somewhat similar habit, but does not reach that height. *C. phœniceus*, *C. cæspitosus*, *C. Berlandieri*, and *C. procumbens* are of spreading habit, and have large showy flowers.

The Echinocactus, with some thirty species and varieties, is very showy and interesting. As a rule all plants of this genus have globular forms and long spines. *E. bicolor*, *horizonthalonius*, *Emoryi*, *longehamatus*, *Wislizeni*, and *polycephalus* are the best species.

The genus Mammillaria is represented by thirty-seven species and varieties; all nice and compact plants, usually with short spines. The most attractive are *pusilla*, *pectinata*, *radiosa*, *recurvata*, and *Grahami*.

Of the Opuntia we have about seventy species and varieties, and out of that number three kinds are hardy, namely: *O. vulgaris*, *O. Missouriensis*, and *O. Rafinesquii*; the latter two with numerous varieties. *O. fragilis*, *O. Camanchica*, and *O. Pes-Corvi* require some protection. All the rest are more or less greenhouse plants, like all the representatives of Cereus, Echinocactus, and Mammillaria.

Several Agaves are natives. *A. Virginica* is a half hardy herbaceous plant, while *A. Desserti*, *A. Shawii*, *A. Utahensis*, and *A. Newberryi* reqnire to be grown under glass.

Dasylirion Texanum and *D. Wheeleri* are good plants for the greenhouse.

The same may be said of *Cotyledon farinosa*, *C. Peacockii*, and *C. pulverulenta*.

The Yucca, a genus represented in this country by about a dozen species and varieties, is very interesting and useful, on account of its ornamental foliage as well as its large spikes of

ample white flowers. Only *Y. filamentosa* with its variety *flaccida* is hardy, it is therefore more valuable than the species *Whipplei*, *angustifolia*, *rupicola*, *brevifolia*, *Schottii*, *baccata*, *canaliculata*, *aloifolia*, *gloriosa*, and *recurva;* all of which require to be taken under glass in the winter.

Hesperaloe yuccæfolium is a beautiful plant; it has long leaves covered with filaments, and the spike is from two to three feet long, bearing many red, drooping flowers not unlike those of an Aloe. Leaving this class we pass to the

Ferns.—Although this class represents only flowerless plants, yet on account of their delicate foliage they are as valuable to the cultivator as any plants with showy flowers. They grow naturally in shaded and moist woods; a few grow in marshes, while a few occur in dry soil fully exposed to the sun. As a rule all like to grow between stones and several kinds grow only upon rocks.

The transplanting of these plants should be done in the spring, before they start to grow. The soil should consist of equal parts of loam, leaf-mould, and peat, with a liberal addition of sand. The ground should be well drained and set with stones as recommended for alpine plants. The propagating of the majority of ferns can be accomplished by dividing the plants in the early spring. They are also propagated from spores, which should be sown in pans filled with soil, or upon rough stones or bricks, and kept in a moist place until they grow to small plants. But this is only done with the rare kinds, or when a great quantity of a kind is required. In describing the best of the some one hundred and twenty five species, I will arrange them according to their hardiness. First we have those that are perfectly hardy, and thus adapted to fill vacant spaces in shady parts of the garden.

Osmunda regalis, *O. Claytoniana*, and *O. Cinnamomea* are amongst the best of the large kinds.

Struthiopteris Germanica is a beautiful fern with large and graceful fronds from three to four feet long.

Lygodium palmatum is a pretty climbing species having stalks over two feet long with small palmate fronds.

The Aspidiums are quite numerous; the best deciduous species are *Goldianum*, *Filix-mas*, *cristatum*, and *spinulosum*; while *acrostichoides*, *Lonchitis*, and *marginale* are beautiful evergreen species.

Onoclea sensibilis although common is worth cultivating.

The most beautiful and delicate fern is certainly *Adiantum pedatum*, with palmately divided fronds.

Polypodium vulgare is useful for covering rocks.

Woodwardia Virginica and *W. angustifolia* are also ornamental.

The larger species of Asplenium, such as *angustifolium*, *thelypteroides*, and *Filix-fœmina*, are quite showy; of the last named there are numerous varieties in cultivation.

Woodsia Ilvensis can stand more sun than any other fern that I know.

Cystopteris bulbifera has long and arching fronds.

Dicksonia punctilobula soon forms a mass of delicate light green sweet-scented fronds.

The half-hardy kinds require to be grown in a cold frame having a northern aspect; with those we must also class all ferns that are in fact hardy, but owing to their delicacy or small size should be grown with the half-hardy ones. Plants of this class are *Polypodium incanum*, *P. falcatum*, and *P. Californicum*, *Gymnogramma triangularis*, and some species of *Nothochlœna*, *Cheilanthes*, *Pellœa*, and *Woodsia;* also *Allosurus acrostichoides*, the lovely *Adiantum Capillus-Veneris*, *Scolopendrium vulgare*, *Asplenium Trichomanes*, *A. ebenum*, *A. viride*, *A. Ruta-muraria*, *A. septentrionale*, *A. montanum*, and the curious Walking Fern *Camptosorus rhizophyllus;* with others.

The greenhouse kinds are very showy and ornamental, but more expensive to keep than the two sections above named. *Polypodium aureum* is a noble plant with very large glaucous fronds. *P. plumula* has neat arching fronds of dark green color. *P. Phyllitidis* has straight undivided fronds.

Acrostichum aureum is a stately and showy fern with large and thick fronds.

Pteris longifolia and *P. Cretica* are good well-known plants.

Adiantum emarginatum and *A. pilosum* are good additions to our greenhouses.

Woodwardia radicans has a thick stem and very large fronds.

Anemia Mexicana and *A. adiantifolia* are interesting plants.

Nephrolepis exaltata is very showy with its long and narrow fronds.

If desired, some of the species of Pellæa, Cheilanthes, and Nothochlæna may also be grown successfully in this section.

The only remaining class is that of

Greenhouse Plants.—Here we may bring together various

plants not included in any of the former classes, yet valuable either for their flowers or their ornamental foliage.

Among the flowering kinds we have *Salvia coccinea*, the whole plant from one to two feet in height, and bearing continually spikes of bright scarlet flowers. *S. pentstemonoides* grows from two to four feet high, and has very large crimson flowers. *S. Greggii* grows about three feet high, producing spikes of red flowers.

Leptosyne maritima is a very useful plant; it grows about three feet high and produces through the whole winter its large bright yellow flowers on long stems. *L. gigantea* is said to resemble the foregoing but is a much larger plant.

Bouvardia triphylla grows over three feet in height, and produces clusters of scarlet flowers.

A plant worth introducing is *Dendromecon rigidum;* it grows from two to eight feet in height and bears numerous yellow poppy-like flowers. Another worthy plant is *Tagetes Lemmoni*, which forms a bush two feet in height covered with large golden flowers. This is a newly introduced plant, and a strict winter bloomer. I think that this plant may be so improved under culture, as to make it a first class plant.

Several species of Ceanothus are very showy plants, with large spikes of blue or white flowers. *C. Veitchianus* and *C. floribundus* are the best.

Vinca rosea also makes a good greenhouse plant.

Mimulus moschatus is well known for its yellow flowers and its perfume as well.

Asclepias Currassavica grows two feet in height and produces clusters of orange red flowers.

Canna flaccida serves both as a foliage and a flowering plant, having large leaves and bright yellow flowers.

As for real foliage plants, we have among others the *Sabal Palmetto*, *S. Adansoni*, and *S. serrulata*, all with large fan-shaped leaves.

Chamœrops hystrix is a dwarf palm, very spiny, with plaited leaves.

The noble *Washingtonia filifera* is a rapid grower, and very striking on account of the long white fibres hanging from the large and plaited leaves.

Oreodoxa regia is a beautiful and ornamental plant having long pinnate leaves attaining large size.

Thrinax argentea and *T. parviflora* are two beautiful plants with fan-shaped leaves.

Lamia integrifolia is also an ornamental plant with pinnate leaves.

To this class of greenhouse plants belong, in brief, all plants that are not hardy, and therefore require to be grown under glass, such as the majority of succulent and insectivorous plants, with several bulbs, ferns, and orchids already described. Here also we may include a supplementary class — that of

Hardy Plants for Forcing. — This word "forcing" means the process of planting, in a pot or pan, any of the earlier flowering plants, and then keeping them for a month or so in the greenhouse, by which means one may secure blooms in advance of the natural flowering season. For this purpose only good and strong plants should be selected; these should be potted in the autumn, and kept in a cold frame till after the first of January, when they may be brought into the greenhouse, according to the times when they are desired to be in bloom. They generally take from two to six weeks to come into flower; any of the early flowering kinds may be forced without much trouble. I will give here only the names of those best adapted for this purpose, as I have already given descriptions of them under Hardy Herbaceous Plants. They are

Aquilegia Canadensis
" cærulea
Phlox amœna
" subulata
Trillium grandiflorum
" sessile
" erectum
Viola cucullata
" " alba
" pedata
Polemonium reptans
" cæruleum
Iris cristata
" cuprea
" verna
" versicolor
Arabis alpina
Sanguinaria Canadensis
Cypripedium acaule
" spectabile
" pubescens
" parviflorum
Papaver nudicaule
Aquilegia chrysantha
Stylophorum diphyllum
Saxifraga peltata
" Virginiana
" oppositifolia
Arisæma triphyllum
Caltha palustris
Erythronium Americanum
" grandiflorum
" albidum
Thalictrum anemonoides

Dicentra eximia	Spiræa palmata
" Canadensis	" Aruncus
" cucullata	Hydrophyllum Canadense
Trollius laxus	" Virginianum
Uvularia grandiflora	Anemone Pennsylvanica
Smilacina stellata	Waldsteinia fragarioides

and the well known Lily of the Valley, which is found amongst the mountains of Virginia.

This comparatively brief summary of the different classes of Native Plants shows what an immense wealth we have in this country; and yet I have left out all the trees and shrubs. These alone, if considered with regard to their ornamental and economical value, similarly with the plants already described, would fill another paper as long as this; indeed that space would suffice to do them only partial justice.

To grow these plants now under consideration successfully and effectively several cardinal points must be considered. In the first place the cultivator must be a real lover of plants, for many hardships are connected with culture; but the recompense is great. The next thing required is good judgment, and next patience, which will lead to final success.

The ground selected should have such varying exposure, elevation, and consistency as to suit any plant among the different classes. If such ground is not already available, much can be done without great expense by digging out some parts and raising others, so as to make it like a piece of natural landscape. This will look more beautiful, as well as more natural, than some artificial gardens of nowadays.

In such grounds a few trees and shrubs could be planted, so as to break the monotony, and only disclose successive parts to view. Where such an effect is desired, a large irregular space or an entire slope might be planted with some of the most ornamental kinds, and this planting would produce a more pleasing impression than any of the stiff beds in the shape of a star or other geometrical form. For we must remember that while we can imitate nature, we cannot improve on it by artificial means.

In regard to the questions, what plants to select, how and where to plant them, and how to manage them during the different seasons, there are many books treating of these matters, but in general they are of little or no real value to the cultivator. A plant

that may flourish under certain conditions in one State may fail altogether in another part of the country; and without comparing remote localities we may take, for instance, two places close together, one on a hill and the other in low ground, and you could not grow the same plant with like results, under similar treatment, in those two places. Then again, the soil is not the same in every garden; and various other conditions that are required by these plants must be regarded. This plainly demonstrates that no complete rules can be laid down in definite form.

The best book to consult is the book of Nature, that lies open before everybody. That is, one must study the plants themselves, so as to know in what part of the country they grow, at what elevation, and in what soil; to know the exposure and average temperature and humidity; to know the size of the plant, its habit, its flowers, and its growing and resting seasons.

With such knowledge you will be able to imitate nature as far as practicable, which is the real and only way to success. By knowing the habit and flowers of any plant you will know in what place it is adapted to produce the best effect. By knowing the natural station you will know how and in what soil to plant it. By knowing the temperature and atmospheric conditions it requires you will know how to bestow your attention and care upon it to the best advantage; and at last, with patient waiting, you will be sure to reap a harvest of flowers that will repay you tenfold for your trouble and labor.

I cannot close this paper without mentioning the very interesting collections exhibited the past year by Mrs. P. D. Richards, Mr. E. H. Hitchings, Miss Mary L. Vinal, Mr. Severance Burrage, and Masters Frank C. Hyde and Walter E. Coburn. These displays have been very attractive as well as instructive to the general public. I hope that it will not be considered out of place if I add that this Society, which has done so much for the cause of Horticulture in general, would do well to offer special inducements for the cultivation of Native Plants, and likewise for the improvement of any variety, or for the raising of any hybrids that should prove of horticultural interest.

Discussion.

Warren H. Manning said that not one person in a thousand appreciates the value of our native plants. All should visit the Botanic Garden where they can see them systematically arranged and carefully cultivated by Mr. Manda. Most of them are horticulturally valuable.

E. H. Hitchings, referring to the remarks of the essayist concerning the early flowering of the Hepatica, said that on the 1st of December he found a plant in bud. He marked the spot and on the 9th of December, there having meanwhile been three or four days with the thermometer about ten degrees above zero and a three days' snow-storm, he found the plant in blossom under a foot of snow.

Robert T. Jackson said it is important to give high cultivation to the class of plants under discussion. People think they do not need it, but they do. Most our hardy ferns are easily cultivated, but *Woodwardia angustifolia* is an exception. They may be transplanted at any season, and will be fine the next year. The Aspidiums and Aspleniums do not require special soil.

The Irises, especially the English and Spanish, which are bulbous rooted, are an interesting class of plants. Like *Iris versicolor* these two species have narrow petals and small standards. They are best planted early; some planted in November did not do well when those planted in September succeeded. *Montbretia crocosmæflora*, a bulbous rooted plant, formerly supposed to be tender, has been found to withstand our winters. The speaker saw a large bed of it at Beverly which had stood out.

Robert Manning said that he had been entirely successful in cultivating *Dodecatheon Meadia*, *Mertensia Virginica*, *Trillium grandiflorum* and *Arisæma triphyllum* in ordinary garden soil, and he hoped that no one would be discouraged from planting them in a similar location by the remarks of the essayist concerning the soil required by them.

Mr. Manda said that he had recommended for the plants named in his paper such soil as they grow in naturally, but he did not wish it to be understood that none of them will grow in any other soil.

Mrs. H. L. T. Wolcott said that she had *Arisæma triphyllum* growing abundantly on a hillside; it might have taken French

leave, but it was there the last time she looked. She was once obliged to move an entire garden of herbaceous plants in July, and by taking care in watering made them live and do well. A plant of *Aster Novæ-Angliæ* was moved on the hottest day in summer without being shaded, and became very much wilted, but she watered it and put a newspaper around it, and in four weeks it was green again, and by the first of October it was a solid mass of purple bloom; its persistency was remarkable. She had never thought the Dodecatheon difficult to raise.

Warren H. Manning said that most herbaceous plants will bear transplanting in summer, especially if a ball of earth is taken up with them.

Mr. Hitchings said that he set a few plants of Arisæma in his garden some years ago, and instead of dying out they had increased every year.

The paper for the next Saturday was announced as "Fertilizers, —Agricultural, Physical, Intellectual, and Moral," by Rev. Frederick N. Knapp.

BUSINESS MEETING.

SATURDAY, February 26, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the Chair.

The President as Chairman of the Executive Committee reported, in regard to the subject of encouraging Window Gardening, referred to that Committee on the 5th instant, a recommendation that $100 be appropriated for prizes for Window Gardening by children under eighteen years of age, the prizes to be arranged by the Committee on Establishing Prizes. The report was accepted and, agreeably to the rules, laid over until the first Saturday in April.

Adjourned to Saturday, March 5.

MEETING FOR DISCUSSION.

It was expected that at this meeting Rev. Frederick N. Knapp of Plymouth would read a paper on "Fertilizers,— Agricultural, Physical, Intellectual, and Moral," but owing to the death of an inmate of his family he was unable to be present, and the meeting was adjourned to the next Saturday, for which time a paper on "Investigations Pertaining to Horticulture," by Dr. C. A. Goessmann, Director of the State Agricultural Experiment Station at Amherst, was announced.

BUSINESS MEETING.

SATURDAY, March 5, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the Chair.

Mrs. Dr. J. W. ELLIOTT, of Boston, and
JAMES L. LITTLE, Jr., of Brookline,

having been recommended by the Executive Committee as members of the Society, were, on ballot, duly elected.

Adjourned to Saturday, March 12.

MEETING FOR DISCUSSION.

ON RATIONAL FERTILIZATION OF GARDEN CROPS AND FRUITS.

By Dr. C. A. GOESSMANN,
Director of the State Agricultural Experiment Station, Amherst.

Mr. Chairman, Ladies, and Gentlemen: It is with considerable diffidence that I venture to speak at a meeting of the Massachusetts Horticultural Society. Recognizing, as I most emphatically do, the superior information of many of its members regarding the advantages and the disadvantages of the best current modes of practical operations in the various branches of horticultural industry, I do not propose to enter into any detailed discussion of

any particular branch, but merely to offer for your consideration some suggestions of a more general character, from the standpoint of an agricultural chemist.

Judging from late publications and addresses by distinguished horticulturists, here and elsewhere, it appears that a well founded apprehension is quite generally entertained concerning the consequences arising from a serious degeneration and a frequent exceptionally short existence of many varieties of small and large fruits, as well as of prominent garden crops. We are advised from all sides to take particular care to secure our seeds, or scions, as circumstances may recommend, from a healthy stock. No one familiar with the facts on which this advice is based can seriously question its soundness, nor underrate the great importance of the object in view.

While personally in full harmony with the course thus recommended, I venture to ask, Does the selection of seeds and scions from a vigorous parent plant suffice to render a reasonable ultimate success attainable, without material assistance from other sources? Answering this question for myself, I feel impelled to say — No!

Health and vigor may be to some extent inborn qualities; yet their continuation, it will be conceded, depends in a controlling degree on favorable and congenial surroundings. Accepting this circumstance, it becomes obvious that our prospect of success will stand in direct relation to our knowledge of what constitutes congenial circumstances in the case of plants under cultivation.

We all admit that a high character of seeds and scions is of the first importance, and that nobody can reasonably expect to succeed who neglects to pay serious attention to the selection of either the one or the other, as circumstances may prescribe, when entering upon the cultivation and improvement of any particular plant; but we are not less aware that a suitable climate, a peculiar soil, and in particular a supply of desirable plant food are not less important factors in the successful propagation of plants. The best of seeds will fail to secure satisfactory results where any one of these conditions of success does not assist in the work.

In studying the history of progress in horticulture we notice that its special interests have been advanced on two distinctly different lines of investigation, namely, by inquiring into the circumstances which favor the production of new varieties, and by exam-

ining the conditions which tend to produce the best results with existing varieties. Botanists have successfully assisted in ascertaining more reliable modes for the production of varieties; the phenomena of plant life are today far better understood than but a few generations ago. Agricultural chemists have in late years bestowed considerable attention on the investigation of the means which promote a healthy and vigorous growth; in the interest of an economical production.

The best experimental resources of scientists in both these branches are evidently needed to solve in its various relations the problem here under discussion. The observations of the physiologist by means of the microscope can gain importance only when aided, as far as practicable, by the balance in the hands of the chemist.

The tendency towards degeneration in many varieties of fruit and of garden plants, if really existing to the extent claimed by many writers on horticultural topics, must be a deep seated one, and is most likely due to slowly acting adverse circumstances, of various kinds. In some instances it may be the result of an uncongenial climate; in others of an unfit soil; in others due to the lack of a proper supply of desirable plant food; in others again to several of these adverse circumstances combined; and may be in all of them, to some extent at least, attributable to the weakening influence of an artificial system of selection and propagation.

Any attempt to generalize at the present stage of our observation will be considered, quite properly, injudicious. There seems to be but one safe rule to follow, and this consists in studying each case under well defined circumstances, and with all the scientific experimental resources at our disposal, before advocating any special course of treatment.

After these introductory remarks to define my position regarding the question under discussion, I take the liberty to invite your attention to a short discourse on the state of our present information bearing upon successful cultivation of existing varieties of fruit and garden crops.

One of the first requirements for a healthful condition and a subsequent successful propagation of any plant consists in adopting a well devised system of fertilization.

We emphasize this requirement not only on account of its intrinsic importance, but for the further reason that its management

is in a controlling degree within our individual direction. An indifferent system of manuring I consider is at the root of a great many well founded complaints of failure in various branches of horticulture, and in fruit culture in particular.

A system of manuring may be called well devised or rational when it is based upon the results of a careful examination into the composition of the plant under cultivation, and on a due consideration of its natural qualifications for availing itself of the needed plant food both from the atmosphere and the soil. Plants with a well developed and extensive root system may prosper where those with a compact one will fail; and the same statement applies with equal force to the character of their leaf system.*

To determine with certainty the composition of a plant, especially with reference to its soil constituents, requires repeated examination in different stages of its growth, and when raised upon different kinds of soil. The relations of the various mineral constituents of the plant to its successful development must be fairly understood to know what elements of plant food ought to be present in the soil, in an available form, to render success possible.

We may well ask, Can we claim any extensive knowledge regarding these points, in relation to many of our prominent species of fruits or to many of those plants which, in the more limited sense of the word, are known as "garden crops"?

Our stock of information in these directions is in an exceptional degree unsatisfactory. Whatever we know about the chemistry of fruit trees and of special garden crops by any systematic investigation is of a late date, and in most instances thus far of a fragmentary character.

The slowness of the exhaustive action of fruit trees on the soil, on account of their extensive root system, and the beneficial results of a frequent rotation of crops, assisted by a liberal supply of vegetable refuse material and of home-made manures, have apparently delayed the need of a scientific inquiry into the special wants of the orchard and garden on the part of agricultural chemists. A surplus in the quantity of manurial matter has no doubt quite frequently provided for special wants; and in this view

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* See plate, in which *a* represents rye; *b*, turnip; *c*. sugar beet; *d*, carrot; *e*, lucerne (Dr. Theodor von Gohren's Die Naturgesetzlichen Grun llagen des Pflanzenbaues, p. 209); and *f*, potato (Dr. Guido Krafft's Die Pflanzenbaulehre, p. 147).

a
b
c
d
e

f

is secured an intelligent explanation of the results. There is no scarcity of valuable testimony to the fact of an exceptionally good success in raising fruits and garden crops by the aid of compound manurial matters such as barnyard manure, vegetable compost of various descriptions, wood ashes, and others of a similar more or less ill defined composition; yet it is equally well understood that but little satisfactory explanation can be given in many instances regarding the particular relation which exists between the constituents or conditions of the manurial substances applied and the quality of the crops raised by their aid.

The world-wide reputation of barnyard manure and wood ashes dates back not merely one or two centuries; their good effects have been known for thousands of years. Are we prepared to acknowledge that nothing more has been learned during the present century in regard to the feeding of plants than to use a little more or less of either substance, as circumstances may broadly indicate, to secure success? Most certainly not; for we have very good reason to believe that their ancient and general reputation rests on their complex character, and on their beneficial influence over various physical and chemical qualities of the soil. They contain in the majority of cases more or less of all the essential soil constituents which our cultivated farm and garden plants need. They can supply on that account, to some extent at least, not only known but also unknown deficiencies of plant food; and may thus secure, other circumstances being favorable, for a longer or shorter period of time a reasonable return when applied in liberal quantity.

Experience has shown that refuse manurial matter like barnyard manure is most efficient when used for the reproduction of those crops which have contributed materially to its manufacture; and the same proposition may be maintained with reference to the manurial value of vegetable compost or ashes.

The exceptional occurrence of these conditions materially limits, in the light of our present information, their claim of being the best of manures for the farm or garden, and needing no farther supplementing to meet any special deficiencies of plant food. The whole aspect of the question how to manure efficiently has gradually but decidedly changed within the last fifty years.

We prefer today to speak of *feeding* plants. To feed plants intelligently implies possession in a fair degree of two kinds of

information, namely, a knowledge of the special wants of the plant under cultivation as regards the absolute amounts and relative proportions of the various essential articles of plant food, and a familiarity with the composition and the general physical properties of the different kinds of manurial matter at our disposal.

A brief statement of the principal results of a systematic and careful examination into the circumstances which control a healthy and vigorous growth of plants may show in what special directions the growth of many of our garden and fruit bearing plants needs more experimental investigation, to secure a more reliable basis for a proper mode of cultivation with reference to an efficient supply of suitable plant food.

First. All our cultivated plants on the farm, in the garden, and in the orchard contain the same elementary constituents, yet no two of them in the same absolute amounts and relative proportions. The list comprises carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus, potassium, sodium, calcium, magnesium, silicon, chlorine (manganese?).

Second. These plant constituents are furnished in part by the surrounding atmosphere, in part by the soil, and some in varying proportions by both.

Third. The essential plant constituents are not needed in different plants in the same invariable proportions at the various successive stages of growth, but are wanted at different stages of growth in different absolute amounts and relative proportions. Each plant has its especial wants at different stages of its development. Grain crops require much nitrogen in an available form during their later period of growth, when blooming and forming seeds; grapevines need a large amount of potash during the growing and maturing of the grapes.

Fourth. The absolute amount of essential mineral constituents may vary in the same plant without affecting, as a rule, the general character of that plant; yet not one of the essential elementary mineral constituents can serve in place of another one to any marked extent without altering, in many instances in a serious way, the relative proportion of the organic constituents of plants. Quite a number of our cultivated plants are more or less susceptible of change in that direction, in consequence of a liberal application of one or the other essential articles of plant food. These changes are as apt to be in our favor as against our best interests.

Fifth. The particular form in which we apply various articles of plant food, as well as the special associations in which they may be applied, exerts quite frequently a decided influence, not only on the quantity of the crop, but also on its quality. The observations contained in this and the preceding statement deserve the most serious attention of horticulturists and nurserymen.

Sixth. The natural resources of the soil in available plant food have proved, as a rule, ultimately insufficient for a remunerative management of the farm, the garden, and the orchard. Older systems of agriculture have failed on account of a scanty supply of manure; and many failures in our present horticulture will be most likely ascribed at some future day to an indifferent system of manuring.

From the foregoing record of well established conclusions, derived from actual observation in the vegetation house, the field, and the garden, we can draw, if we desire, some valuable lessons for our guidance in the practical management of the various branches of agricultural and horticultural industry.

A careful consideration of the different points stated cannot fail to impress us with the fact that to manure our lands efficiently means today something more than to incorporate into the soil an exceptionally liberal amount of some incidental refuse matter of ill-defined composition, as barnyard manure, vegetable compost, or wood ashes. Both good economy and our preference for a healthy and vigorous condition of our cultivated plants advise a change from an indifferent system of manuring to a more rational one.

The steadily increasing consumption of agricultural chemicals and of commercial manurial compounds, for the purpose of supplementing our home resources of manurial matter, is a gratifying endorsement of the good service which systematic, scientific, experimental investigations into the causes of a successful production of remunerative crops have rendered to practical agriculture and horticulture.

Much has been thus far accomplished considering the short period of time since our views regarding these points have thus materially changed; yet much more work is still needed to secure a reasonably adequate control of the subject under discussion. Agricultural chemists have need to make themselves more familiar with the best current modes of raising and improving fruits and

garden crops, thus preparing themselves for the recognition of the particular circumstances which promote success; and horticulturists, on their part, ought to acquaint themselves more fully with the results of the systematic scientific experiments made in their interest; and each in his particular line of industry ought to give them fair and intelligent trial, as far as cireumstances admit.

Every attempt at a rational and remunerative system of cultivation ought to begin with an inquiry into the location of the lands and the general character of the soil, to ascertain the special fitness of each for the contemplated industry; and, in case the lands have already been under cultivation for years, their past history ought to be consulted before any particular course of operation is decided upon. Inquiries in these directions are likely to give us some valuable insight into the character and extent of existing and available soil constituents for plant food.

A due consideration of the character and amount of the existing available plant food of the soil, and some definite information in regard to the composition of the plant we propose to cultivate, ought to guide us in the selection of the kind and the quality of the manurial substance. Care should be taken in this connection to secure, within certain limits, a liberal supply of *every essential food constituent* of the plant under cultivation, so as to meet *promptly its periodical wants* when called for. The heavier the crop the larger should be the return of the constituents carried off from the soil. Meanwhile we must bear in mind that success does not depend on any exceptionally large amount of one or the other prominent article of plant food, such as phosphoric acid, potash, or nitrogen, but on a liberal supply of every essential plant constituent; for of the essential articles of plant food that one which is present in the soil in the most limited proportion controls the ultimate result.

I stated in the beginning of my discourse that variations in the composition of many of our fruits and garden plants have not thus far been as thoroughly studied as those appearing in many of our field crops; yet since much assistance may be derived from careful consideration of what we already know in this direction, I add here a compilation of analyses of garden crops and fruits which show the amount, the character, and the relative proportions of the fertilizing constituents they contain. Most of these analyses are taken from the record of E. Wolff, and the remainder from personal observations at Amherst, Mass.

Analysis of Garden Crops and Fruits for Fertilizing Constituents.

TABLE I.

ONE THOUSAND PARTS OF THE PLANTS CONTAIN:

NAME.	Water.	Nitrogen.	Ash.	Potash.	Soda.	Lime.	Magnesia.	Phosphoric acid.	Sulphuric acid.	Chlorine.	Silicic acid.
CORN — (kernels)	144.	16.0	12.4	3.7	0.1	0.3	1.9	5.7	0.1	0.2	0.3
(stalk and leaves)	150.	4.8	45.3	16.4	0.5	4.9	2.6	3.8	2.4	0.6	13.1
POTATO—(tubers)...	750.	3.4	9.5	5.8	0.3	0.3	0.5	1.6	0.6	0.3	0.2
(vines)....	770.	4.9	19.7	4.3	0.4	6.4	3.3	1.6	1.3	1.1	0.9
PEAS—(seed).....	143.	35.8	23.4	10.1	0.2	1.1	1.9	8.4	0.8	0.4	0.2
(vines)....	160.	10.4	43.1	9.9	1.8	15.9	3.5	3.5	2.7	2.3	2.9
BEANS—(seed).....	150.	39.0	27.4	12.0	0.4	1.5	2.1	9.7	1.1	0.3	0.2
(vines)....	160.	....	40.2	12.8	3.2	11.1	2.5	3.9	1.7	3.1	1.9
CARROTS—(roots).. .	850.	2.2	8.2	3.0	1.7	0.9	0.4	1.1	0.5	0.4	0.2
(leaves)....	822.	5.1	23.9	2.9	4.7	7.9	0.8	1.0	1.8	2.4	2.4
SUGAR BEET—(roots)	815.	1.6	7.1	3.8	0.6	0.4	0.6	0.9	0.3	0.3	0.2
(leaves)....	897.	3.0	15.3	4.0	2.0	3.1	1.7	0.7	0.8	1.3	1.6
WHITE TURNIP.....	.....	....	....	.....	....	....	....	....	....	....	....
(roots)....	920.	1.8	6.4	2.9	0.6	0.7	0.2	0.8	0.7	0.3	0.1
(leaves)....	898.	3.0	11.9	2.8	1.1	3.9	0.5	0.9	1.1	1.2	0.5
SWEDISH TURNIP ...	.....	....	....	.....	....	....	....	....	....	....	. ..
(roots)....	870.	2.1	7.5	3.5	0.4	0.9	0.3	1.1	0.7	0.5	0.1
(leaves) ...	884.	3.4	19.5	2.8	0.8	6.5	0.8	2.0	2.3	1.5	2.1
WHITE CABBAGE....	.....	....	....	.....	....	....	....	....	....	....	...
(head)....	900.	3.0	9.6	4.3	0.8	1.2	0 4	1.1	1.3	0.5	0.1
(roots)....	890.	2.4	15.6	5.8	1.5	2.8	0.6	1.4	2.4	1.3	0.1
SAVOY CABBAGE....	.....	....	....	.....	....	....	....	....	....	....	....
(head)····	871.	5.3	14.0	3.9	1.4	3.0	0.5	2.1	1.2	1.1	0.7
CAULIFLOWER..... .	904.	4.0	8.0	3.6	0.5	0.5	0.3	1.6	1.0	0.3	0.3
HORSE RADISH.... .	.....	....	....	.....	....	....	....	....	....	....	....
(roots)....	767.	4.3	19.7	7.7	0.4	2.0	0.4	2.0	4.9	0.3	1.5
SPANISH RADISH....	.....	....	....	.....	....	....	....	....	....	....	....
(roots)....	933.	1.9	4.9	1.6	1.0	0.7	0.2	0.5	0.3	0.5	....
PARSNIP.....	.....	....	....	.....	....	....	.. .	....	....	....	....
(roots) ...	793.	5.4	10.0	5.4	0.2	1.1	0.6	1.9	0.5	0.4	0.2
ARTICHOKE.....	.....	....	....	.....	....	....	....	....	....	....	....
(roots)....	811.	....	10.1	2.4	0.7	1.0	0.4	1.1	1.3	0.5	0.1
ASPARAGUS—(stems)	.....	....	....	.....	....	....	....	....	....	....	....
(roots)....	.....	....	....	.....	....	....	....	....	....	....	....
(sprouts)....	933.	3.2	5.0	1.2	0.9	0.6	0.2	0.9	0.3	0.3	0.5
COMMON ONION.....	.....	....	....	.....	....	....	....	....	....	....	....
(bulb)....	860.	2.7	7.4	2.5	0.2	1.6	0.3	1.3	0.4	0.2	0.7
CELERY.....	841.	2.4	17.6	7.6	....	2.3	1.0	2.2	1.0	2.8	0.7
SPINACH.....	923.	4.9	16.0	2.7	5.7	1.9	1.0	1.6	1.1	1.0	0.7
COMMON LETTUCE...	940.	....	8.1	3.7	0.8	0.5	0.2	0.7	0.3	0 4	1.3
HEAD LETTUCE.....	943.	2.2	10.1	3.9	0.8	1.5	0.6	1.0	0.4	0.8	0.8
ROMAN LETTUCE	925.	2.0	9.8	2.5	3.5	1.2	0.4	1.1	0.4	0.4	0.3
CUCUMBER.....	956.	1.6	5.8	2.4	0.6	0.4	0.2	1.2	0.4	0.4	0.5
PUMPKIN	900.	1.1	4.4	0.9	0.9	0.3	0.2	1.6	0.1	....	0.3
RHUBARB	.....	....	....	.....	....	....	....	....	....	....	....
(roots)....	743.5	5.5	28.8	5.3	....	5.0	1.6	0.6	....	....	....
(stem and leaves)	916.7	1.3	17.2	3.6	0.3	3.4	1.3	0.2	....	....	....
APPLES	831.	0.6	2.2	0.8	0.6	0.1	0.2	0.3	0.1	....	0.1
PEARS	831.	0.6	3.3	1.8	0.3	0.3	0.2	0.5	0.2	....	0.1
CHERRIES	825.	....	3.9	2.0	0.1	0.3	0.2	0.6	0.2	0.1	0.4
PLUMS.....	838.	....	2.9	1.7	....	0.3	0.2	0.4	0.1	....	0.1
GOOSEBERRIES	903.	....	3.3	1.3	0.3	0.4	0.2	0.7	0.2	....	0.1
STRAWBERRIES.....	902.	....	3.3	0.7	0.9	0.5	....	0.5	0.1	0.1	0.4
GRAPES	830.	1.7	8.8	5.0	0.1	1.0	0.4	1.4	0.5	0.1	0.3
(seeds)....	110.	19.0	22.7	6.9	0.5	5.6	1.4	7.0	0 8	0.1	0 2

TABLE II.

These analyses were carried out for the purpose of showing the relative proportions of the stated elementary constituents of the ash. Sodium, chlorine, sulphur, and silicium were, for various reasons, excluded from the investigation.

Name.	Per cent. of crude as contained in one hundred parts of dry matter.	Relative percentage of essential constituents in one hundred parts of ash.				
		Potash.	Soda.	Lime.	Magnesia.	Phosphoric acid.
Lombard Plums.....	.29—.35	76.59	.....	13.26	2.17	7.44
Peaches.....	.34—.35	74.46	.....	2.64	6.29	16.03
Baldwin Apples....	.22—.25	63.54	1.71	7.28	5.52	20.87
Asparagus—(stem)..	.....	42.94	3.58	27.18	12.77	12.31
(roots)....	.....	56.43	5.42	15.48	7.57	15.09
Clinton Grapes.....	.78—.88	57.40	3.51	13.10	7.24	17.87
Concord Grapes....	0.88	62.29	.....	15.50	1.76	18.49
Cranberries.....	0.179	47.96	6.58	18.58	6.78	14.27
White Currants....	0.59	53.81	.....	17.46	4.72	22.54
Black Raspberries..	.33—.44	50.00	.....	19.44	9.60	20.47
Blackberries.....	.35—.40	51.42	.....	17.22	5.30	24.13
Blueberries.....	0.16	31.36	.....	28.02	9.25	29.05

A close examination of these analytical results reveals in many instances remarkable variations in regard to almost every essential fertilizing constituent of plants. Some contain one part of phosphoric acid to one part of potash, others one of the former to two, three, four, and even as high as five parts of the latter. A similar variation may be noticed as regards the relative proportions of phosphoric acid and nitrogen; in most instances we find more phosphoric acid than sulphuric acid and chlorine, yet in some species of plants more sulphur and chlorine than phosphoric acid may be noticed. Similar circumstances exist as regards the proportions of lime and magnesia.

The recognition of these conditions obliges us to concede that none of our ordinary manures, composed of refuse matters, can be considered in the majority of cases the most suitable fertilizer without the addition of some one or more articles of plant food in a suitable and available form. Good economy and a regard to healthful conditions of the soil advise that course.

There still remains one point of importance to which I desire to call your attention in this connection, namely, the careful selection of manurial substances with reference to the most advantageous form.

A productive agricultural or horticultural soil implies, for various reasons, the presence of decaying vegetable matter; this condition we secure either by a direct addition in the form of barnyard manure, or some other vegetable refuse material incidental to our industries, or by green manuring, or a judicious system of rotation of crops. The latter course is in many instances the safer one, as far as the preservation of a healthful condition of the soil is concerned.

An excessive accumulation in the soil of either animal or vegetable matter, or of both, is apt to turn it into a breeding place of injurious parasitic growths. For this reason it is not advisable to secure a liberal supply of the various essential articles of plant food by the use of an exceptionally large quantity of barnyard manure or of any organic refuse material of a similar character.

A moderate use of these substances, supported by a proper addition of concentrated commercial articles of plant food for the purpose of rendering them complete fertilizers, deserves in the majority of cases particular commendation on account of the directness and certainty with which we can reach the object in view.

The adoption of this course of manuring our lands has not only materially improved our chances of securing larger crops, but, what is of not less importance, it has enabled us to notice the particular influences which the different essential articles of plant food not unfrequently exert on the quality of the crop. Observations in this direction are today so well established that no one familiar with the facts can reasonably question their important bearing on vital interests in agricultural and horticultural industries.

We have good reason to believe that not only the particular form, but also the particular association and relative proportion, in which we apply the various articles of plant food, will, under corresponding conditions of season and soil, control in many instances the special commercial value of our crops.

We begin to discriminate between muriate of potash and sulphate of potash; we learn that a liberal supply of nitrogen and potash, in the absence of a corresponding proportion of phosphoric acid, tends to retard the timely maturing of some crops; it is not less recognized that sulphate of lime and sulphate of magnesia (kieserite) favor in an exceptional degree the growth of leaves and stems; sulphate of magnesia (kieserite) used in connection with potash compounds is known to send the potash to the subsoil and has thus proved a most efficient remedy for clover and beet sick lands; and the same effect may be expected in our orchards, as far as distribution of potash is concerned.

More observations of a similar character might be mentioned in this connection, yet I cannot attempt, on an occasion like the present, an exhaustive treatment of the matter under discussion. I take the liberty to call your serious attention to the previous statements merely on account of their suggestive importance.

To be able to produce in some plants, or in a particular part of any plant, an exceptionally large amount of sugar, or starch, or acid, or nitrogenous matter; in others to cause an exceptional development of leaves and stems; and again in others to exert a decided influence on the length of time required to reach their full maturity means in the end nothing less than that our chances for controlling the quality of our crops are daily improving. The results thus far known are of sufficient importance to incite us to active participation in a systematic course of experimental observation, by which we may hope to make further progress in a rational system of special fertilization.

A careful study of the growth of many species of plants has revealed the fact that, as a rule, every one of them has some inherent tendency to develop, under special circumstances, in some particular direction. In some instances the flowers are most disposed to a change; in others, the seed; in others, the fruit; in others, the tubers or the roots, etc.

Our cultivated varieties of field and garden crops are evidently the results of systematic endeavors through ages to develop these inherent tendencies of plants in directions promotive of the benefit of humanity.

Each age has contributed its fair share, considering its special resources, toward the present advanced condition of horticulture. The introduction of an intelligent system of special fertilization in the interest of a desired development of the natural or inherent tendencies of our cultivated plants may yet prove a contribution to horticultural practices worthy of our progressive times. Horticulture was a highly developed art before botany was known as a science; yet no one in any degree familiar with the present relation of botanic research to the various horticultural industries would for a moment question seriously its beneficial influence on their recent progress. Give to chemistry a similar chance to demonstrate its influence and the result cannot be doubtful.

Discussion.

William C. Strong said that there were few persons in any assembly who could follow such a paper as had been read. It is most valuable for its simple statement of fundamental truths. The fact that so much progress has been made in the last fifty years in all professions — that of medicine for instance — that the laws governing the breeding of animals are so much better understood — leads to the opinion that more progress ought to have been made in the department of vegetable physiology and feeding, but when we listen to such an essay as Dr. Goessmann's we feel that this deficiency will soon be supplied. We see the necessity of further investigation; we see that it will not do to supply too large a quantity of vegetable food to plants; it is like overloading the stomachs of animals. Farmers cannot make the investigations needed, and it is fortunate that we have such a man as Dr. Goessmann to do it. It is wise economy for the state to supply the

means whereby he can do it, and the speaker hoped that he would be well supported in his experiments.

Edmund Hersey asked whether more nitrogen was required by grain crops the last of the season than earlier, to which Professor Goessmann replied, Yes.

Mr. Hersey went on to say that he had been much perplexed by the question what is really in the soil. Soils vary in each field, and unless we know what crops have been grown and what fertilizers have been applied we are working in the dark. Suppose that, on a piece of land where phosphate has been applied freely, he raises a crop which does not need much phosphoric acid, ought he not to remember that? Can we distinguish by the growth of the plants what element preponderates?

Professor Goessmann replied that the knowledge of what has been applied to the soil and taken from it in past years is most important information, for by it we can judge of its probable deficiencies. If the crops have carried off a large proportion of phosphoric acid and little has been applied we need to apply more. He spoke of a field which had been prepared for experiment by cropping with corn until no more would grow. It was then divided into twelve parts; the first for nitrogen in the form of nitrate of soda; the second for sulphate of ammonia; the third for nitrogenous organic matter, there being an equal amount of nitrogen in each case. The fourth had a fair amount of phosphoric acid; the fifth muriate of potash, and the sixth sulphate of potash. The crops on all the plats came out of the ground alike, but only those where potash was used carried them out and yielded a complete crop. If the past history of the ground had been taken into consideration this might have been expected; it had been in grass and corn. The farmer should study the past history of his soil, considering its quality, general character, and what has been grown on it. By such study, combined with experiments in the special application of potash, phosphoric acid, and nitrogen, each by itself, he can tell better what his land needs than the chemist can without such information.

The Professor said he was much pleased with the progress which has been recently made in the knowledge of the subject under consideration. Ten years ago no commercial fertilizers were used for fruit crops; now he receives many letters asking intelligent questions on this point, and farmers generally are today far more

enterprising and intelligent in their use of fertilizers than a few years ago; we need, however, to make systematic experiments at our stations, and not form hasty conclusions from a single trial. Contradictory reports of experiments can be explained by the fact that not all the circumstances are known.

In reply to a question the Professor said that magnesia is wanted in some soils as well as the three substances before named. Professor Ville found that wheat would not form the seed without sufficient magnesia. Magnesia compounds ought to be more generally tested for efficiency. Potash is one of the most important articles which soils are not generally able to supply, as they can lime and magnesia; but soils lying on granite rocks containing felspar are not usually deficient in potash.

The great advantage of barnyard manure and compost is that they contain all the constituents of plant food. But we can do better than to use these exclusively, and particularly when it comes to the quality of the products; which we can improve by the use of special fertilizers. In one case it is the fruit that is wanted; in another the flowers. The proportions of sugar, starch, and other constituents can be changed by the judicious use of special fertilizers, and in this direction there is a wide field open for research in future. If we follow Nature we can turn special fertilizers to account as well as special selections; one is the work of chemistry, the other of botany. Farmers can carry on experiments in this direction: if one man in a community takes them up others will follow. Farming is an art, chemistry is a science, and they should go hand in hand. To establish a fact requires a full knowledge of all the circumstances of the case. The object of all scientific inquiry in regard to the culture of the soil is to ascertain the basis of success. If this is once recognized its adoption is easy.

Horticulture has a great advantage over agriculture in the means of information which it possesses, owing to the variety of crops with which it deals, while in agriculture the number is few. The less the number of crops raised in any locality the sooner they fail. It takes time for soil to recuperate when exhausted.

Leguminous plants are preferred for green manure because they root deep and bring fertilizing matter from below to above. Buckwheat is very nitrogenous and therefore eligible. Plants with large leaves and stems are desirable for this purpose. But we must

keep in mind that green manuring is not enriching the soil, except in nitrogen. It may sometimes do well once when it would not succeed a second time. It gives nature a better opportunity to prepare the inherent resources of the soil. The use of clover as a green manure has given relief at first, when afterwards its effect has disappeared. The deep rooting plants like clover and lucerne should alternate with grain crops in a good rotation.

Such legumes as horse beans, lucerne, red clover, and lupines, which draw fertility from the subsoil and bring it to the surface, have been aptly called vegetable subsoil ploughs. At the Agricultural College Farm the speaker planted horse beans and lupines on land which had not produced above half a ton of hay to the acre; the crops grew as finely as any ever seen, and they were turned under and grass was sown and there was not a finer catch in the town. The horse bean needs far less potash and phosphoric acid than grass. The aim of the farmer should be to supplement the natural resources of the soil. It is impossible to decide by chemical analysis of a soil what it is capable of producing. Most experiments are mainly of educational interest; they are not intended to show farmers how to work, but to illustrate the principle involved. We should aim to grow crops of good quality and should select for seed only the best and most mature specimens.

Mr. Hersey said he had drawn the conclusion from his experiments that corn needs a good deal of phosphoric acid to carry it out.

Dr. Goessmann said that the seed of corn has about four times as much nitrogen as the stalk. When the seed is formed the nitrogen and phosphate are not just taken from the soil, but have been for some time moving to the centre of growth. He had not been able to raise a potato with twenty-five per cent of solid matter; one which contains only twenty per cent is imperfect. We have not yet settled on what is the requirement of a perfect seed for cultivation; this can be best ascertained by scientific investigation. The heaviest potato is the one to be selected for propagation.

William D. Philbrick said that he was engaged in market gardening and had never been troubled by over-dosing.

Dr. Goessmann said that undecomposed vegetable matter in the soil might encourage parasitic growth. We put in as much

manure as we think will pay, but we have not yet learned fully the effect of over-dosing; we do not know how much organic matter may be produced by manure. In some of his experiments he had found that lime accumulates in the diseased parts of trees and potash is deficient. He thinks that many of the diseases of plants may be due to excess of undecomposed vegetable matter or barnyard manure in the soil. Fifteen or twenty years ago we might have rolled our seed in fertilizer without injury, but now we cannot because the fertilizers are more concentrated.

Mr. Hersey said in regard to over supply of manure that he had found that some plants would bear it and others would not. In order to get enough potash for potatoes from barnyard manure you must apply more nitrogen than is needed, and the over supply of nitrogen may be injurious. Asparagus does not seem to be injured by an over supply of manure; he had applied at the rate of seventy-five cords per acre for successive years.

Professor Goesmann said that agriculturists well know that crops do better for rotation. The natural tendency of rain is to carry down the plant food in the soil. This is one reason why an alternation of shallow rooting crops like grain and deep rooting crops like clover and lucerne is recommended. All soluble fertilizers are subject to some loss by leaching; it is difficult to say what proportion of fertilizers is lost in this way; more is lost in sandy soils than in clay, but the loss is not so much as is generally supposed. Drainage water shows no more nitrogen where that element was applied than where none was. In an experiment in passing water through the soil, no phosphoric acid was noticed until nitrate of soda was applied. One farm may need one crop and another a different crop to take the plant food which was out of the reach of the previous crops.

On motion of Francis H. Appleton a vote of thanks to Dr. Goessmann for his admirable and interesting paper was unanimously passed.

The Committee on Discussions gave notice that on the next Saturday William J. Stewart would read a paper on the "Progress of Commercial Floriculture."

BUSINESS MEETING.

SATURDAY, March 12, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the Chair.

The President read the following letter:—

BOSTON SOCIETY OF NATURAL HISTORY,
BERKELEY STREET, BOSTON, MASS.,
March 10, 1887.

Dr. Henry P. Walcott:—

DEAR SIR,—The following vote was unanimously passed by the Council of this Society at its last meeting and has been sent to the Mayor and Board of Aldermen:

Voted, The Council of the Boston Society of Natural History, regarding with favor the proposition to devote a portion of the Public Garden to the uses of the Massachusetts Horticultural Society and particularly for its valuable exhibitions, begs permission to support the petition of the Horticultural Society to the City Government, on the ground that if granted it would foster on the part of the public a larger interest in the very objects of the Garden. The Council looks on all movements tending toward the education of the public in natural objects and natural laws with the deepest concern, and believes in this instance that the best interests of the public would be served by as close a relationship as possible between the Horticultural Society and the Garden.

Your truly,

EDWARD BURGESS,
Secretary.

Adjourned to Saturday, March 19.

MEETING FOR DISCUSSION.

THE PROGRESS OF COMMERCIAL FLORICULTURE.

By WILLIAM J. STEWART, Boston.

Mr. President, Ladies, and Gentlemen: Your Committee has asked me to read a paper on the Progress of Commercial Floriculture. The whole history of commercial floriculture in this country is progress — progress so rapid and so remarkable that it

seems almost incredible. What is commercial floriculture? What is a florist? So great has been the development in all lines of business connected with the introduction, culture, and sale of floral productions that our language even has not kept pace with the business; and so we find a great combination of industries for which we have no distinctive or generally accepted names. Thirty years ago, when one spoke of a gardener, or a florist, every one knew what was meant. What is a gardener now? Who are the florists?

I am sure that if I were to confine this essay to a narration merely of the progress in the *culture* of flowers for commercial purposes, I should not be fulfilling the duty expected by your Committee. They desire also to hear something about the great modern marts, where cut flowers are distributed, arranged, and sold, and which a few years ago did not exist. But what have those places to do with floriculture? Many of those employed in them never potted a plant, never syringed a house; many of them know as little of the details required to perfect the flowers they sell as they do of the manufacture of the wire and tin-foil they use, or the baskets they fill, yet they occupy an important place in the florist's business of today. The little industry which forty years ago was only in the embryo state has during the past twenty years made such strides, and its present rate of growth is so great, that it looks as though the future will have to coin new words if it will keep up with the florist's trade.

The commercial idea, this trading in cut flowers by the dozen or hundred, I am well aware is an unwelcome subject to some well-meaning people. I recall a conversation with a gentleman whom you all know, and whose fame as a botanist is world wide, in which he made some inquiries regarding my employment, and I shall never forget the look of disgust which overspread his face as he said, "Yes, yes, peddle them out so much a barrel, just as you would potatoes." There are doubtless many people who agree with him; they grow a flower for itself, they say, and not for its value in dollars and cents. But where do our most beautiful flowers, our most luscious fruits come from, and whom shall we thank for them? They are in many cases, no doubt, primarily the result of the labors and studies of men who have done the work for the love of it alone; but had it not been for that ever-present and all-powerful element in human nature, the desire for gain, and the

energy and enterprise begotten of business methods, these prized results of love's labor would have staid in the spot where they first saw the light, in the possession only of their originator or his immediate friends, and the millions who have enjoyed them would have never known that pleasure.

In these latter years, however, some of our most earnest students of plant life, and of methods of fertilization and propagation, those who are striving hardest to discover or to produce new varieties, are not amateurs, nor are they enthusiasts, working solely for love of the work, but they are men who know the value in hard cash of anything meritorious. The spirit which has spanned the continent with railways, and covered it with a maze of telegraph wires, which lines our streets with magnificent buildings and tasteful stores, and which has thrown the treasures of the whole world at our feet is the same identical spirit as that which animates and spurs on our great hybridizers and rosarians, and which ransacks every corner of the earth, braving the dangers of the wilderness and the pestilence of the tropics in the great quest for something new or rare.

The florist of a generation ago was in most cases a pretty humble and obscure individual. He was generally a man who was employed, by one or several parties, to keep their grounds in order; and occupying as he did a station socially about on a plane with the coachman and hostler he was expected to be as expert at milking the cow, and wheeling out the ashes, as he was at tying bouquets. His hothouses were of the crudest pattern; small, inconvenient, poorly heated, and set with but little regard to fitness of location or aspect. Our modern devices for heating, ventilating, and propagating were unknown to him, and he was as innocent as a child regarding the much discussed questions of the comparative merits of hot water and steam, theories of circulation and radiation, and many other problems that interest his more fortunate brother of the present day. His stock of plants was more of a museum than anything else, and occasionally it was mainly a hospital. The hospitals in some instances are unfortunately still to be found. His bouquets, if we could see them now, would be regarded as curiosities. With a stick in the middle to keep them straight, and the flowers wound on as tightly as they could be packed together, they were indeed marvels of workmanship. About the only designs attempted, besides bouquets, were wreaths and a few crosses. These were fashioned on sticks or hoops.

His customers were just as simple as himself, and the whole cut flower trade of Boston probably would not have sufficed to keep one of our modern flower shops going. Most of us can remember the time when about the only flowers which could be bought in this city were the few stiffly made bouquets that were brought to town every morning, and offered for sale in the windows of some provision dealer or druggist.

What a contrast with the condition of the flower business of today! There are plenty of men engaged in it who in general intelligence, education and refinement, are the equals of those in any other line of trade. It is rapidly becoming a business of vast importance; with a large amount of money invested, with its wholesale, commission, and supply dealers, importers, jobbers, and retailers. It is no longer in the experimental stage, and cannot be successfully conducted at random or by guesswork. Competition and increased investments of capital have brought prices down as low as possible, and the man who does not manage his business carefully and systematically stands but a poor chance to succeed. Foresight, energy, and brains are what tell in the flower trade of today; and there is room in it yet for more men who are blessed with these requisites. The man who raises the best flowers in the market, of any variety, is always pretty sure of good sales at good prices. With such perishable articles, which cannot be produced at will, there will always occur seasons of glut; and at such times it is the man that offers the inferior stock who must go to the wall first.

The tendency of those engaged in growing flowers for the market nowadays is towards specialties. It is certainly better for a man to grow two or three things well and gain a reputation for those specialties, than to produce a little of everything indifferently. Most rose growers now limit themselves to a few varieties, which, for one reason or another, they regard as the most profitable; and the best success is attained where each variety has a separate house. The number of varieties of roses which may be considered as staple, since they are quoted at wholesale in most of the large markets in this country, is about twenty-five, as follows: Bon Silene, Safrano, Isabella Sprunt, Niphetos, Perle des Jardins, Sunset, Papa Gontier, Souvenir d' une Amie, Mme. Cousin, Souvenir de Malmaison, Maréchal Niel, Cornelia Cook, William Francis Bennett, Pierre Guillot, Bride, Catharine Mermet, American

Beauty, Gen. Jacqueminot, La France, Baroness Rothschild, Mme. Gabriel Luizet, Magna Charta, Anna de Diesbach, and Duke of Connaught.

Other varieties which are grown for the market, but less generally, are Douglas, Duchess of Edinburgh, Yellow Tea, Royal Tea, Lamarque, Reine Marie Henriette, Climbing Devoniensis, Boule de Neige, and an assortment of Hybrid Perpetuals, which are forced for winter consumption. The most desirable points in a market rose are continuous and abundant blooming, long stems bearing single buds, and robust foliage, with fragrance, clear color, and good keeping qualities in the flower.

Quite a large proportion of the roses grown about Boston are shipped to other points in New England, Canada, and the West. The shipping trade has grown to be a very important item, and is the outlet through which our surplus finds its way; and which keeps prices up so as to afford a fair remuneration. There is no doubt that during the greater portion of the year there are more roses grown about Boston than it would be possible to consume here; and if the shipping trade were to cease we should be swamped, and prices would at once fall far below the cost of production, bringing ruin to many.

The popularity of the rose seems not to diminish, and it probably will not as long as the demand for novelties is supplied by new varieties. Every year brings forth fresh candidates for popular favor, most of them from the other side of the water; but the proportion of really successful ones is small as compared with the number sent out. The conditions under which a rose is forced for market in this country are so different from those under which it is raised and grown abroad that many roses of European origin whose appearance has at first given great promise have proved utter failures, causing much financial sorrow to those who invested in them.

The Carnation has taken a fresh hold upon popular fancy within two or three years, and deservedly so, for the new kinds which have been introduced recently are in many respects great improvements upon the old varieties. To be valuable now, a carnation must produce its flowers on single stems, so that they can be cut long. The flowers must be distinct in color, large and full in form, and not inclined to burst at the calyx.

The Violet is a popular flower the world over. The only variety

which is generally salable here is the Marie Louise, and this is subject to a disease which has baffled the most experienced violet growers and forced many to give up its culture. The result is that those whose plants have escaped the scourge have reaped a profitable return during the past two years. It is a singular fact that in Philadelphia single violets are the most popular, while here they cannot be sold.

After roses, carnations, and violets, the flowers most extensively grown for the market are those produced from bulbs and tubers, such as Lily of the Valley, Roman Hyacinths, Tulips, Daffodils, and Lilies of several kinds. Dutch Hyacinths, which were so much sought after formerly, are now positively unsalable.

Who would have believed it possible a few years ago that lilies of the valley could be produced the whole year round? Yet it is true that there is not a day in the year when these flowers cannot be supplied in quantity.

Other flowers which may be considered as staple, being regularly quoted in the wholesale market, are Narcissi of several kinds, Freesias, Bouvardias, Mignonette, Callas, Camellias, Myosotis, Lilacs, Pansies, Smilax, and Ferns; also some kinds whose sale is limited to certain seasons, such as Sweet Peas, Asters, Chrysanthemums, Gladioli, etc.

The difference between the varieties called for here, and in England, is seen by consulting the prices current as published in the English periodicals. There we see quoted Tea Colored, Red French, and Safrano Roses, with Tropæolums, Primulas, Poinsettias, Jasmine, Gardenias, Abutilons, Corn-Flowers, Pyrethrums, Pelargoniums, etc. So much for fashion. A wholesale dealer who should offer that list as his stock in trade would starve here.

The extent of the cut flower and kindred industries is much greater than is generally imagined. I have corresponded with such gentlemen as Peter Henderson, John N. May, August Rolker & Sons, W. S. Allen, and J. C. Vaughan, with a view of compiling some estimates which would be approximately reliable; but the figures received vary so much that it is difficult to arrive at a satisfactory conclusion. The importation of Lily of the Valley roots amounts to several millions annually; the growing of these roots for this market being quite an industry abroad. The consumption of cut Tulips alone certainly amounts to many thousands daily during the winter season, and the number of Roman

Hyacinths grown is simply enormous. Cut flowers amounting at wholesale prices to one million dollars in value pass through the hands of commission dealers annually, and the amount sold by growers for the market outside of the commission dealers must be as large, if not larger.

From fifteen to twenty thousand dollars is invested annually in plants of new varieties of roses. Mr. Thorpe estimates that there are six hundred and thirty acres of ground covered with glass in this country, about one half of which is devoted to the growing of plants and one half to the production of cut flowers. There are probably not less than fifteen thousand individuals engaged in growing plants (for sale or for cut flowers) and in florists' stores.

Not less than fifty million plants are sold annually, and the importation of bulbs and plants must amount to nearly, if not quite, half a million dollars in value. Tuberose bulbs, which we formerly imported, we now export in large quantities; and the exportation of Pampas Grass has also grown to be quite a large business. One and a half millions of plumes is probably a low estimate.

But these figures give little idea of the amount of business or number of people directly or indirectly dependent upon the cut flower trade. Consider the material used in constructing greenhouses, such as glass, iron pipe and fittings, hot water boilers and steam apparatus; the labor employed and the money invested in the manufacture of plain and fancy flower pots, rubber hose, fertilizers, insect exterminators, and horticultural tools of all kinds; also the capital invested and the number of people employed in the making of ornamental baskets; and the value of baskets of foreign manufacture, of wheat, immortelles, etc., which are imported annually. One estimate places the value of coal annually consumed at nearly four hundred thousand dollars. Tons of iron are made into wire and wire designs for florists' use; many thousands of pounds of tin-foil, also cords of wood (in the form of toothpicks for stemming flowers, and of plant stakes), are items of considerable account; while the rents paid for stores and the money paid in wages to help of both sexes must amount to a large sum. Enormous quantities of moss, wild ferns, ground pine, laurel branches, etc., are gathered in the woods every year, this one industry giving continuous employment to many people in the country. The Boston market alone consumes annually two mil-

lion wild ferns, two thousand barrels of moss, four to five tons of ground pine, and twenty thousand yards of laurel festoons. These figures are for regular florists' demands, and do not take into consideration the Christmas trade in greens, which of course is very large.

We must not forget the large sums spent in illustrated catalogues, many of which are really works of art, and in postage paid on the same; nor should we overlook the educating influence of the illustrations in such publications, which are generally true to nature, with the result that the average flower painter or engraver of today knows better than to sketch lilies with five petals; and needs not be told that lilies of the valley do not branch or that morning glories do not bear tendrils. The general knowledge of varieties in flowers and of their habits and characteristics, which a florist finds nowadays among his customers, is very gratifying and is significant, showing as it does the educating influence which has been at work—a result which is due largely to the enterprise and liberality of the commercial florists, who have placed the choicest productions of nature's handiwork within the reach of everybody, no matter how poor.

What a wealth of beauty is displayed in the florists' windows today! The old stories we used to read in our younger days of the poor city children who had never seen a green field, a rose, or a dandelion are no longer true. The situation has indeed changed; and rose-buds, violets, sweet peas, and daffodils are now as familiar to the eyes of the children of the street as they ever appeared to the most fortunate of their country cousins.

Is it surprising that horticultural exhibitions, pure and simple, appear to be losing ground? The time when people would crowd into a hall and gaze with open mouthed wonder on a table covered with dishes of pears and radishes and apples, or rows of bottles filled with a variety of flowers, is past and gone. Commercial floriculture gives the people a free exhibition every day throughout the winter in the florists' windows on Tremont street such as in the horticultural exhibitions of a few years ago was never dreamed of. The same is true of fruit. The Italian fruit-stands on our street corners, with their loads of strawberries in April and May, and of peaches and watermelons in July, would have been worthy of an admission fee twenty-five years ago. Even Orchids, as rare novelties, have seen their best days. The commercial flor-

ists have their eyes on the orchids and they are doomed. They will not long be the flower of the few.

Not all of the work done by the florists, however, has been in the direction of art or good taste. We have seen floral designs, so called, which were nothing but hideous monstrosities; and such things have given the critical a fair foundation for wholesale denunciation of the whole business. Flowers have been made to do duty in the manufacture of freight cars, chopping blocks, teapots, bedsteads, shovels, lambs that could not be distinguished from Berkshire pigs, doves that would as readily pass for hens, and a host of other abominations. This is one feature of the progress of commercial floriculture which we may well deplore. Perhaps the best way to remedy this state of affairs is to educate the public to a higher appreciation of work that is really artistic; for as long as people will demand such things and are willing to pay for them of course the florists must supply them.

But floral designs need not be monstrous; and many even that are formal can be made beautiful in the hands of a true artist. Here is the opening for the successful floral exhibition of the future. At the recent Orchid Show held in New York, the most noticeable feature and that which went farthest toward making it a success was the manner in which the grouping was done. Everything was arranged with an eye to artistic effect so that altogether it made one perfect and harmonious whole. Luxuriant banks of ferns filled the shady corners, while beautiful pitcher plants hung above; orchids which grow naturally in the air were attached to old mossy branches overhead; while under the shade of palms and tree ferns whole colonies of Cypripediums peeped forth from verdant banks. After seeing such a picture, no one would think of going back to the old style of exhibition where each contributor sets up his own row, and the result is a lot of loose ends and detached groups without harmony or system, and what might otherwise be a grand and beautiful display is completely spoiled for lack of a comprehensive plan and a master hand to carry it out.

Within the past three years a remarkable movement has been taking place among the florists. They have not only a national society which is already a magnificent organization, but they are uniting in different cities all over the country into Florists' Clubs, so-called. What is the cause of these simultaneous movements,

and what will be the result? I think the cause is principally that the commercial florists find that the horticultural and agricultural societies and similar organizations, from their very composition and nature, cannot adequately represent or serve the best interests of so large and progressive an element. The gentleman of leisure with his few dozen of pet raspberry bushes will carefully pick off a couple of quarts of fruit and hie him to the city; occupying his whole Saturday forenoon with arranging them in a dish on a table and watching with jealous eyes the dish of his neighbor alongside. Another will buy a couple of baskets of verbenas in the spring, take them home, and plant them in his little front garden, and when they come into flower he too will start for the city with his verbena flowers, which he will stick into a row of bottles, and then hang around to see whether the committee will not recognize his self-denial by placing upon his exhibit a considerate one dollar gratuity. But commercial florists have no time or inclination for such trifling. It is too far behind the times. Regarding essays and discussions, there are so many questions that are all-important to the commercial florist of the year 1887 that he cannot afford to divide the time with the market gardener, the farmer, and the fruit grower.

When this Horticultural Society was organized floriculture was but a babe in this country. There was nothing to be made from it pecuniarily. Its members had but little in the way of precedent or example to encourage them and it mattered not whether they were carpenters, farmers, or dry goods dealers; they were welcome so long as they thought enough of horticulture to use their money and their efforts for the good cause. All honor to them. They builded better than they knew; and what more can be wished for the new organizations than that at the close of an equal period of time they may be able to point to a record of usefulness equal to that which is the pride of the Massachusetts Horticultural Society. If it had not been for this and kindred societies commercial floriculture would not have been what it is today. But, as the child when grown to robust stature leaves his father's home and strikes out to make his mark in the world—as the thriving offshoot from the potted plant, finding its quarters cramped, must be taken away and put in a place where its ambitious vigor can find room to work, so the commercial florists, as they feel their strength and as they begin to know their needs,

strike out for themselves in order that they may devote all their time and their best energies to those questions which most concern their own welfare. They do not by this action sever the ties that bind them to this paternal home. They will be seen and heard here, and you will find them all the better sons for having got away from their leading strings and proved their own strength.

They are now taking a lesson in self-reliance and independence — not as individuals, but as a body. The influence which can be exerted by such a union of interests, and the pressure which can be brought to bear wherever and whenever it is necessary, were shown in Congress last winter, when an oppressive bill to double the postage on seeds was withdrawn, chiefly through the efforts of the Society of American Florists. There is plenty of work for them that has not yet been touched. The disgraceful practice of sending out goods under false names, which has flourished in so many quarters, must be attacked with vigor and fought relentlessly until this stigma is removed from the reputation of American dealers; and the travelling impostors who have been going over the country unmolested for years, with their gaudy pictures of flowers the like of which never grew, will soon find the place too hot for them.

The florists are at last beginning to think and act for themselves, and substantial benefits cannot fail to follow for them and for the public. It has been a long struggle for them. Hard work all day and often all night, without a holiday and with scarcely a Sabbath that they can call their own — this has always been, and to a certain extent always must be their lot. These men who have reversed the seasons and have turned dreary winter into a long summer day, whose vocation is to make the home brighter, to add to the beauty and joy of the bridal festival, to cheer up the sick room, and to lessen the loneliness and desolation of the funeral, have come up from very humble beginnings. What they now have has been well earned; and the business of which they are today proud has come not by chance or good fortune but is the result of application, perseverance, and patient toil.

Discussion.

Edward L. Beard said that he was very glad that Mr. Stewart had so well set off the florists' view of floriculture, and he deemed many of the suggestions made worthy of consideration. He felt

that our own Society is bound sooner or later to recognize intelligently the commercial florist. It should do all that it can to encourage his interests; it should do more than it has ever yet done, and should keep pace with the movement which has proceeded so rapidly of late years. While the florists are essentially commercial men they are not the less introducers of new things, and thereby advancers of horticulture. Our Society is one which can afford to take a higher view of this subject than it has yet taken. The interests which control it and the florists' associations have much in common, though they may work in different ways. The recent Orchid Exhibition in New York was an enterprise involving great risks, and it was a great credit to the florists who managed it that they made it as successful as they did, twenty-five thousand people having attended it, paying an admission fee of fifty cents each. No comparison can justly be made between it and our own exhibition, but it shows great activity and energy. As long as the florists' efforts are in such a direction as that horticultural societies ought to encourage them.

Notice was given that on the next Saturday a paper would be read by Francis H. Appleton, on the "Embellishment of Grounds with Trees and Shrubs."

BUSINESS MEETING.

SATURDAY, March 19, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President Benjamin G. Smith in the chair.

No business being brought before the meeting, it adjourned to Saturday, March 26.

MEETING FOR DISCUSSION.

THE EMBELLISHMENT OF GROUNDS WITH TREES AND SHRUBS.

By FRANCIS H. APPLETON, Peabody.

Most of the ladies and gentlemen who listen to my brief words today have probably long since made up their minds as to how their own grounds should be laid out, and have them already

well embellished with trees and shrubs as well as flowers and climbing plants. There are, however, many other people whom our TRANSACTIONS will reach,— there are still more whom we should like to have them reach and benefit,— who would be glad to learn the best methods of planning and planting their grounds, and how to secure or raise their own trees, shrubs, and vines. And while we steadily strive to help the loyal members who attend our meetings and otherwise aid in doing the active work of planning and executing for the Society, it is the non-attendants and non-members who most need to be interested and instructed in the line of horticultural taste.

With this view I desire to direct attention to the fact that our TRANSACTIONS for 1887 can be made practically useful towards promoting an increase in the number of embellished homes in Massachusetts; and, even if such increase cannot always be in the form that might be recommended as best by those most capable of judging, nevertheless any advance in this direction will be a stepping stone to a more general introduction of the best methods, eventually.

Would that more of those living in suburban homes, in villages and on farms, could be persuaded that there is actual value, as well as pleasure, to be gained through the embellishment and protection of their home grounds by a common sense planting with trees and shrubs, and I will add vines.

Some people have not the taste and inclination, while others have perhaps not had their attention sufficiently awakened, to realize fully the benefits of the course proposed, and to know how easily such results as our subject suggests can be accomplished. Consequently the advantages must be shown, and persuasion brought to bear, and advice given as to how the trees and shrubs and vines can be secured, and what varieties it is best to select.

Where the advice of those who have devoted themselves to a study of this subject, as have many of those who are here today, can be secured it should always be sought; and consultation of books, such as we have in this excellent library, would prove instructive in this as well as in all other horticultural matters.

Propagation of trees and shrubs from seeds and cuttings is the cheapest way, and is also an interesting and instructive one; but it is at the same time a slow method of securing a supply and would seldom prove satisfactory to most of those who desire to

embellish their grounds. They would probably prefer to reap the benefits from their work sooner by commencing with something that could be more quickly recognized as a tree or shrub, than could young seedlings. But where land is to be covered with trees for forest growth seedlings can always be used to advantage.

Toil, either mental or bodily, requires daily rest; and how can the toiler be better refreshed than by the rest to be acquired amid tasteful surroundings, in a home made attractive with trees, shrubs, vines, and the landscape views and effects which are formed thereby.

I have in my mind many farm and village homesteads, scattered throughout this and neighboring states, which could be made pleasanter, more interesting to their owners, and consequently of more value, by the mere addition of a few trees and groups of shrubbery.

The occupation of planning, planting, and caring for such simple embellishments is healthful and agreeable on estates of all sizes; and where the treatment of large estates is undertaken upon extensive plans, and under professional management, there is hardly a limit to the skill that may be shown and the beauty that may be developed.

Perhaps decoration of the latter class scarcely needs stimulating, for it seems to be almost an instinct in men of wealth to turn their attention to subjects connected with farming or horticulture; but to form, in the minds of those who are now indifferent to the subject, a desire for and appreciation of such embellishment seems to be the best means to promote a general diffusion of this benefit. By all means let everyone cheerfully do his part in this interesting and important service.

As regards expense, the work proposed can all be accomplished cheaply and surely — provided it be slowly — indeed at almost the cost of one's own care and labor; while at a larger but still moderate cost and with the advantage of experienced advice it can be secured in a shorter time.

Before attempting to state a few general principles for laying out grounds, let us briefly consider of what size it will be best to secure our trees. My experience has resulted in a belief that it is best, as a rule, to set out comparatively small trees,— in the case of evergreens say not over four or five feet high; and to use a considerably greater number than will eventually be needed, in

order that they may give mutual protection until they become well established. The deciduous trees — whose branches can be trimmed in, so as always to bear a proper proportion to the roots — might be set out from six to eight feet high. Shrubs are best with ample roots and small tops in proportion; this rule will also apply to vines.

I think it is generally safest to apply these rules, and where there is any question as to the size of a tree to choose the smaller size; as this will have the greater chance of succeeding. No cast iron rule can be laid down which will apply to all cases. If the site for planting is an exposed one the trees should be small; but if they are to be set out where it is already protected by existing woodland, which will afford shelter to the new trees, there will be fewer required and those that are planted can safely be larger than if in an exposed location. It seems to me that the sizes I have named represent a fair average.

In setting all ornamental trees the ground should be thoroughly prepared beforehand, unless seedlings are to be set, when a slight spading may suffice. To prepare thoroughly for trees of the sizes I have suggested, remembering that we are striving for good success, it is best to dig the holes about four feet in diameter and two or more feet deep; fill them with good loam, and for deciduous trees, shrubs, and vines spade in some good manure.

Every man who plants ought to do so intelligently, and should find a pleasure in personally studying his own requirements. I would advise everyone who is fond of trees to study the habits of growth of a few deciduous species by planting the seeds in three or four boxes, after the method suggested by Mr. Dawson in his paper in our TRANSACTIONS for 1885,* which is quite simple.

Ornamental planting must be adapted to the conformation of the land and the uses to which it shall be put; therefore everyone who owns a homestead, or farm, ought to have a good plan of its outlines, on which may be shown the positions of woodlands, pasture, tillage, and unproductive land; also of the buildings, roads, and ornamented grounds, and the kitchen garden. The watercourses and the differences in level should also be shown. Such a plan continuously kept, with revisions from time to time, is essential to the best results.

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*Part I. page 158.

The roads and buildings should be located with reference to convenience, but where the conformation of the ground or a grove or cluster of trees makes it best to have the roads and paths deviate from a straight line, picturesqueness is gained and no convenience sacrificed. It is often possible, by planting trees or otherwise creating an artificial obstacle as a reason for so doing, to deflect a road or path and thus gain a pleasing effect, without any unreasonable inconvenience resulting; thereby increasing the natural beauty of the grounds, and opening vistas which add to the general landscape effect; and forming scenes of varied grace which no artist's brush can reproduce.

I shall make no attempt to give any detailed plans for planting individual places and developing what nature has provided in ever varying character on the many estates, of all sizes, which afford opportunities in this direction; but will barely mention here a few leading and obvious principles.

Trees should be so planted as to afford protection to both biped and quadruped; and especially the north and north-west sides of buildings should be screened from cold winds by belts of evergreens. These, however, should be not nearer than thirty or forty feet; leaving the interval as a precaution against woodland fires. A gravel walk or road around any building is an additional protection.

The beneficial influences afforded by the direct rays of the sun should be allowed to reach the dwelling apartments of all living creatures, in house or in barn, in summer as well as in winter; and trees should not be so placed as to prevent this when they become large.

Considering trees as a shelter, the evergreens would seem to be the best protection against cold and wind, while deciduous trees will screen us from heat; but, used in combination, both join in producing the best ornamental effects.

I would that we might further encourage individuals to find in the study of such decoration a pleasant pastime; and thus to enjoy advantages that lie at their very door but which may otherwise never be realized.

The study and practice of decorative planting has a value beyond its immediate results, since by cultivating thoughts about trees it stimulates people to read of and study their habits, and thus to acquire a knowledge of their effects upon climate and vegetation, on water sources, and in mitigating the action of dangerous

winds and storms. And if, as there is reason for believing, our forests are being sacrificed so that the welfare of parts of this country is endangered—either as regards the main watercourses on account of the scarcity of water for a large part of the year, and freshets or floods for a short time in spring, or as to the increasing lack of timber, or the consequent unfavorable effect on the climate—what action can be taken to prevent it?

In France, and other foreign countries, the great injury caused by the too extensive cutting of forest trees has been publicly recognized; so that, as I understand, it has been deemed necessary for the good of the country that government permission shall be obtained before any woodland can be reclaimed for tillage; and that such permission shall be granted only upon condition that an equal acreage shall be planted with trees as an equivalent.

The subject of forestry is of course entirely distinct from that of ornamental planting of trees, although one who undertakes the latter is most likely also to acquire some knowledge of the former. There is evident need for promoting knowledge of this subject among our citizens; for we cannot avoid the consequences of our mistakes. As a means of instruction our own Common is a treasure to our citizens, which cannot be too highly appreciated; and has been made such more especially by those who caused many of the trees to be labelled with both their botanical and popular names; which has undoubtedly greatly increased the interest in the subject of which it is so fine an illustration. The number of species and varieties of trees which it contains is considerable.

It will not be desirable to take up your time with a detailed description of the many kinds of trees and shrubs which are suitable for use in embellishing grounds. What is chiefly needed where home grounds remain unembellished, or partially so, is to endeavor to make the owners or occupants of such grounds realize the advantages of forming a systematic plan — serving to show clearly how they might embellish, or might be advised and persuaded to embellish their grounds and roadsides — and then to inspire them to accomplish it as early as possible. There are unfortunately many people who have the opportunity but lack the necessary incentive to ornament their grounds; in whom a genuine love of the natural beauties of the world does not exist, or is not devel-

oped sufficiently to encourage them to become participants in this good work.

Too many omit to plant trees, who could perfectly well do so, because of the old excuse that they grow so slowly and will not benefit the planter. Such a man should recall the grateful shade of many a fine tree, planted in his own or a former generation, which he has been privileged to enjoy. Let that, combined with many a charming landscape picture, seen through a frame of foliage planted by another — perchance an ancestor — stimulate him to go and do likewise. Will he not recognize that, as he reaps benefits from those who have planted before him, so he ought in his turn to plant for those who come after?

Several old works upon this subject, ss well as later ones, have interested me; and one writer in 1796, who was well acquainted, we are told, with still earlier writers back to 1664, cautions his readers in the strongest terms against a "want of spirit" in planting. He says that all who undertake planting must have "industry, spirit, and perseverance to go through with what they undertake; and we recommend to such as are possessed of these valuable qualifications to begin upon a small scale, and to let their seminaries, their nurseries, and their plantations increase with their experience."

He further says, "While, however, we caution our readers against entering immaturely upon the business of planting, we cannot refrain from mentioning the pleasures which result from it. How rational, and to a contemplative mind how delightful, to observe the operations of Nature; — to trace her in every stage, from the seed to the perfected plant; and, from beneath the leaf stalk of this, through the flower bud, the flower, and the seed-vessel, to the seed again! Man must be employed; and how more agreeably than in conversing with Nature, and in seeing the works of his own hands, assisted by her, rising into perfection—" so as to grow as he grows, to bear him company and afford him grateful shade when he shall most need it in advancing years, and when life is ended to be left behind as a most beautiful memorial.

The reputation of this Society is familiar to horticulturists generally throughout the United States, and its name is also known abroad. The esteem in which it is held as an educator is now great, but must largely increase as each new year comes around

in turn, and the opportunities it affords become yet more extensively known. By opening our halls as we do at the seasons when plants and flowers, vegetables, and fruits are in their best condition, we afford occasions and facilities for the display of the results of the cultivators' skill, and for intelligent study and appreciation of them by the public. Our Library is one of the finest collections of horticultural works in the world — is very nearly the best; and it is the privilege of any student in horticulture to freely consult its shelves. The Society's prizes are open to all comers, and its readiness to benefit is only limited by its opportunities or means to act as occasion arises.

Is there not some way by which its power for good can be felt more completely throughout this State? Some way of encouraging everywhere a local horticultural interest, and making more widely known what can be found here at all times; and the fact that our rooms are open for an exchange of views on Saturdays? Such an increase in the field of investigation and practice in horticultural work as might thus be established in our comparatively small and compact State could not fail of good results; while it would yet more firmly secure to Massachusetts her present proud position as respects educational advantages.

We have in our State a varied surface, with a generous proportion of rich arable soil, and other that is better suited to use as pasturage or for the growth of trees. In our climate, where the heat of summer tends so powerfully to dry up the short sweet grass of our pasture lands, do not trees shading the surface of such pastures contribute to ward off the effects of drought, to sweeten the green food and lengthen its supply by preserving moisture longer in the soil, and to otherwise enhance the comfort of the animals grazing under the shelter of their branches?

It is said that animals must be kept out of pastures until the trees are fully established, and this is objected to as impracticable on the score of economy; but have we not lands which appear to be deteriorating gradually, where some such radical means are necessary to preserve their quality, and where, later, such a course may greatly enhance their value? Again, have we not good trees that could be planted in pastures, and which animals would avoid, but which would, with a little care as to trimming their limbs, form shelters to animals as well as to the ground, thus becoming of use in two ways at once?

We know that only amongst tree-covered hills and fields we find the sources of perennial springs, and that these are fast decreasing in many sections of our State; and we all recognize their usefulness, and admire their beauty as the water flows from them in gentle streams, winding perchance beneath tall trees, or between belts of shrubbery, until finally united with the larger water-courses. Is not this a picture of Ornamental Planting such as is by no means an impossibility?

As to the profit to be derived from planting with forest trees for commercial purposes, we should not base our calculation upon the prices of today, but upon the probable prices in the future when the crop will become marketable; at which time, to all appearance, there will be a much greater scarcity of forest products than now. It has been said that land which can be bought for a few dollars an acre is the only land where it is warrantable, in a commercial view, to plant forest trees; and that seems to be an aspect of the question which the advocates of forest planting in Massachusetts must meet. But by embellishing portions of our land, secured when prices are low, with woods intelligently cared for during a period of years, can we not have, in a reasonably short time, ornamental forests in the neighborhood of large cities, and near our towns, where the citizens can find agreeable resting places in their spare hours; with drives and walks well sheltered with foliage during the season when the days are longest, and the hours for pastime, and without business occupation, are most numerous? Often lands that are partially planted by nature can be secured, on which the existing growths may be guided, while new ornamental trees are added — these being so planted as to secure that improved effect and enhanced beauty which a wise mixing of different varieties must create.

No better bequest can the present generation leave to the next than well planted city and town grounds. It must be the best appearing towns, as well as the towns that can show the best financial management, that will take the lead in the future; and a combination of these two good points will decide for the citizen where he shall make his home.

By showing the comparative ease with which tree planting can be done we may hope to promote such results; but in this, as in all such work, we shall find that our efficiency as a Society de-

pends largely upon our accommodations for satisfactorily displaying exhibits which may be made here, and the convenience with which our library can be consulted, and moreover ease in placing our exhibits and also good light in which to examine them are important requisites; consequently we require such halls and rooms as will best and most conveniently serve these various purposes. Thus, a hall on the ground floor and with ample windows, a library with good light and sufficient shelving, and in which quiet can be secured, and committee-rooms such as to allow the quiet consideration of questions of awards and management, are essentials. With such facilities the good work which has always been done here can be largely increased. It seems to be only a question of short time what shall be done to improve the present accommodations.

How can we further aid in bringing about the general home embellishment of which we have spoken? It must be chiefly by increasing and promoting a love for the beautiful, and by fostering a desire to understand the process of formation and growth of our fine trees, shrubs, vines, and plants, that we may hope to materially increase the number of embellished homes in Massachusetts.

Again, by encouraging the judicious decorating and planting of all school-yard borders (allowing ample play ground), and of grounds about all postoffices, railway stations, city and town halls, and all public buildings, where any decoration in this line is possible, we should be taking a foundation step towards the accomplishment of this desirable end. Consider the number of eyes that would then see and minds that would be led to think of the advantages of embellishing grounds; and consider the large proportion of persons who would sooner or later attempt to adapt to their own homes the suggested ideas.

The TRANSACTIONS of our Society for this season will contain valuable papers already presented; one relating to "Trees and Shrubs," by Mr. Levi W. Russell, and another on "Ornamental Climbing Plants," by Mr. John G. Barker. In addition, I would again call attention to Mr. Jackson Dawson's essay on the "Propagation of Trees and Shrubs from Seed," in our TRANSACTIONS for 1885.* We hope also that gentlemen present will add the names

* Part I, pages 145–164.

and descriptions of desirable shrubs in the course of today's discussion. In view of all this information, there would seem no excuse for not knowing with what to embellish one's home grounds; at least wherever our publications shall reach.

I close with the following list and brief descriptions of what seem to me the most desirable trees for planting in Massachusetts, either for embellishment or for their utility as timber.

Acer saccharinum: Sugar Maple. — Good as a forest or as an ornamental tree; will do well on rocky hill-sides, when once established.

Acer dasycarpum: White Maple. — Naturally growing along river banks, but seeming to grow rapidly in almost any situation; does well as a street tree, but is easily broken by ice.

Acer platanoides: Norway Maple. — A round-headed tree of medium size, suitable for shade or ornament; might be used in plantations.

Acer rubrum: Red Maple. — Will grow on any soil, but seldom makes a large tree unless in moist ground.

Ailanthus glandulosus: Tree of Heaven. — Where perfectly hardy will grow on almost any soil; wood excellent in grain for cabinet making.

Betula lenta: Black or Cherry Birch. — Will grow on the poorest rocky soils; good for ornamental planting and also for fuel.

Betula papyracea: Paper Birch. — One of the most ornamental of the birches; a fine tree for large lawns or other plantations.

Betula alba: English White Birch. — A very beautiful ornamental tree. The variety *populifolia*, or American White Birch, will grow in the poorest of soils, and makes good fuel if cut and kept under cover, but rots if wet.

Betula nigra: Red or River Birch. — Grows naturally in low grounds, but is a fine ornamental tree in any good loam; fine for parks or plantations along streams.

Betula excelsa. — This species is found far north, and in the mountains of Western Massachusetts; it grows on seemingly thin but moist soils; a fine tree for ornament or plantations.

Carpinus Caroliniana: Hornbeam. — A small tree; does fairly well on sterile soil.

Carya alba: Shell-bark Hickory. — Though growing in almost

all situations, does best in deep rich loams; good for timber or for ornament, and fine in groups in a park.

Carya sulcata: Western Shell-bark Hickory. — Like the common hickory as regards choice of soil.

Carya porcina: Pig-nut. — One of the best of timber trees, useful and ornamental; slow-growing on poor soils.

Carya amara: Bitter-nut. — Very rapid growing on moist soils, even where the soil is thin; very ornamental, either in groups or single.

Castanea vulgaris var. *Americana:* American Chestnut. — Does well on any soil that is well drained, either for timber plantations, parks, or roadside use.

Castanea pumila: Chinquapin, or Sweet Nut. — A medium-sized shrub here; fine as an undergrowth or on the edges of plantations, furnishing good food for game and also good for man.

Catalpa speciosa. — Highly prized in the West on account of its rapid growth, and its durability; fine also as an ornamental tree.

Fagus ferruginea: American Beech. — A fine tree for grouping in parks or pleasure grounds, and does well in a thin soil when once established; good for fuel.

Fagus sylvatica: English Beech. — Not so spreading as its American cousin, but nevertheless a good tree for ornament.

Gleditschia triacanthos: Three-thorned Acacia. — Rapid growing on any ordinary land; of fine foliage; good for ornamental planting or hedges.

Juglans cinerea: Butternut. — A rapid growing tree in good soil, valuable as timber and for ornamental planting; nuts edible.

Juglans nigra: Black Walnut. — A first class tree for ornamental and useful work; requires to be planted in good loam while small.

Magnolia acuminata: Cucumber Tree. — A fine tree for lawns or parks; neat in its appearance; it needs a deep sandy loam to do well.

Platanus occidentalis: Button Ball Tree. — A fine ornamental tree; thrives fairly on medium land, but requires good treatment to make it grow to a large tree.

Populus alba: Abele, or Silver-Leaved Poplar. — A rapid growing tree; used in Great Britain for floors; is easily scoured

to pure whiteness, does not take fire as readily as other woods, and burns very slowly; is also good for paper pulp.

Populus canescens, Gray Poplar, and *P. nigra*, Black Poplar.—The wood of *Populus nigra* is much used abroad for packing cases, especially for bottled wines; the knotty trunks, which are curiously mottled, are made into ladies' work-boxes, which are highly valued in Germany and France.

Cladrastis tinctoria: Virgilia, or Yellow-wood.—A beautiful tree for ornamental plantations, of fine spreading habit, and beautiful in bloom.

Cratægus: Thorn.—All the large growing species form fine fringes along the borders of woodlands or parks; they are attractive both in fruit and flower.

Fraxinus Americana: White Ash.—A tree of the first order for timber; makes a fine road tree, but late coming into foliage; to grow it well requires a good, somewhat moist, soil.

Fraxinus pubescens: Downy Ash.—A tree that will do on higher grounds; but it does not make so large a tree as *F. Americana.*

Liriodendron tulipifera: Tulip Tree.—A grand ornamental tree; and further south it makes a fine timber tree a hundred feet or more in height.

Prunus serotina: Wild Black Cherry.—Makes a fine timber or ornamental tree; the wood is also valuable for turning and for cabinet making.

Quercus rubra (Red Oak); *Q. tinctoria* (Quercitron, or Black Oak); and *Q. coccinea* (Scarlet Oak).—All these do well on light soils. Though not as valuable as the White Oak, they are of much more rapid growth. Nothing is more beautiful than *Q. coccinea* for ornamental planting, and its autumn coloring far exceeds that of most of the other oaks.

Quercus palustris: Swamp Spanish or Pin Oak.—Though naturally fond of moist ground, this will adapt itself to almost any situation. It is a tree of most rapid growth and beautiful form. Trees planted from the seed box on a hill-side without any preparation ten years ago are today fine specimens ten or twelve feet high, of beautiful form. This would make a most excellent street tree. An avenue of these planted at Flushing, Long Island, by Mr. Samuel B. Parsons, some twenty or twenty-five years ago, is the finest avenue of oaks on Long Island.

Robinia Pseudacacia: Common Locust, or False Acacia.—

Flourishes on comparatively thin soils; although in some sections it is troubled with the borer, in some situations it does well. It is of very rapid growth while young, and would make a good nurse tree until others could be grown. The wood is very durable.

Tilia Americana: American Linden, or Basswood. — A much finer tree than the European Linden, and although it loves a moist situation it makes a fine tree in any ordinarily good soil. From the bark can be made a bast equal to the finest Cuban, which is so much used as a tying material.

Salix alba: White Willow. — Also a fine tree; will do well in any good soil; is readily propagated by cuttings of any size, from six inches to as many feet in length. The bark is rich in tannin, and the wood makes a fine charcoal, excellent for gunpowder and fine crayons.

Of the Pine family, nothing is so well adapted to the worn-out soils of New England as *Pinus Strobus*, the White Pine; and nothing will so well repay in a few years the labor required in planting and care. Usually it will make a good sized tree, available for fuel or for box boards, in from twenty to twenty-five years. It is easily transplanted, but a little difficult to grow from seed by amateurs. There are many farms in New England where there are groves of pines, and where thousands of young seedlings from six inches to a foot in height can be found. If a few thousands of these were collected each year and planted thickly in nursery rows for one year, all that were going to die would do so the first season. The following season they could be transplanted in pasture or prepared ground, four or five feet apart each way, after which they would require but very little care and would soon repay the planter in fine groves of pines.

After one or two years a few quarts of acorns might be dibbled in amongst the pines and the resulting growth would serve as the nucleus of a second crop, to succeed the pines.

Pinus resinosa: Red Pine. — Also a fine tree for light lands; of rapid growth, fine as an ornamental tree, but not so valuable as the White Pine for timber.

Pinus rigida: the common Pitch Pine. — Valuable in places where other trees will not grow, such as along the coast and in other exposed situations. In such places it will act as a shelter to the better trees that may be planted afterwards. It will grow readily from seed sown broadcast or in hills.

Larix Europœa: Scotch or European Larch. — An excellent tree for poor lands, and can be obtained from Douglas, of Waukegan, Illinois, at a few dollars per thousand. Plants two years old, transplanted, are the best for forest culture.

Abies Canadensis: Hemlock. — Valuable on hill-sides having an eastern or northern exposure, and near water.

Abies balsamea: Balsam Fir. — Though of rapid growth on ordinary soils and a fine ornamental plant, it is not long-lived; it lives but from thirty to forty years, and is not much used as a timber tree.

Pinus sylvestris: Scotch Pine. — The same may be said of this as of the preceding. Although of rapid growth, twenty-five to thirty years is about all it will last on our thin soils and in our dry climate, though it is excellent as a nurse or shelter tree.

Picea alba: the common White Spruce.— Nothing is better than this for wind-breaks, shelter, or ornament. It is much hardier than the Norway Spruce, and should be planted in preference to that tree, though the Norway makes a fine tree in a sheltered, moist situation.

Of Elms, the American, or English, or Dutch will grow in any situation and make good-sized trees. To have them in perfection they need a good generous soil with considerable moisture.

All the Willows and Poplars can be propagated with the greatest ease by cuttings six inches or more in length; any boy can grow them. Planted six or eight inches apart in nursery rows in early spring, they will at the end of the first season be fit for planting in the field.

All the Oaks, Hickories, Chestnuts, and Walnuts can be started from seed in shallow boxes, and transplanted at the end of the first year in nursery rows or where they are to remain.

The Birches should be sown on well prepared beds, patted down with the back of the spade or pressed with a light roller, and covered with a light mulching of hay until the plants appear, when the covering should be gradually removed. These seeds can scarcely be covered with loam if success is desired. Such seeds as those of the Leguminosæ should be well soaked for twenty-four hours or more before sowing.

Full directions for seed-sowing may be found in Mr. Dawson's paper, which has been before referred to.

At the conclusion of Mr. Appleton's essay, the following paper was read by the author.

Ornamental Shrubs.

By William C. Strong, Newton Highlands.

I have been requested to add a few suggestions in regard to the use of Shrubs; which include a class of plants occupying an intermediate position, in point of size, between the trees and the herbs of the field.

When we consider the vast range of material in the vegetable kingdom, extending from the minutest forms of microscopic fungus-growth and running by easy gradations up to the towering heights of the Sequoias, which lift their giant heads in air more than a hundred feet higher than the topmost stone of Bunker Hill monument, we become lost in wonder and admiration of the wisdom and the goodness of Him who has so freely displayed his limitless resources in the works of his hand. What infinite skill in the vast variety in form and size and diverse fitness for every conceivable requirement! With reverent thankfulness should we seek to make the best use of these gifts of a bountiful Creator.

At the outset, then, we shall naturally consider the special advantages of Shrubs in respect to size.

There is a place for everything and each will fit in its own place better than anything else. We would not be guilty of such incongruity as to dwarf a humble cottage into insignificance at the foot of some mighty monarch of the woods. However much we may admire the noble grandeur of the forests, their heavy shades are not fitting places for the abode of man. Our dwelling places must be under the open sky where we can get the benefit of clear air and warm sunlight. We may use trees for protecting our houses from the too fierce glare of the sun; we may line our streets with trees for shade; we may plant groups for landscape effect and for wind-breaks; but there is a limit to the use of trees in proximity to our dwellings which becomes the more apparent as the population becomes more dense.

It is at this point that we find the greatest usefulness of plants of smaller growth, which will yield wooded effects without producing an overshadowing mass of foliage.

We can readily see how appropriate for the homes in our populous towns are the shrubs and trees of smaller growth, of which

we have an ample variety. Many of these are perfect in form and striking in foliage, giving good examples of trees in miniature. Others are better in groups, or extended banks which may suggest bird's-eye forest views. But a principal use will be for belts of irregular outline, either along the borders of our lot or in other positions concealing the limits of the place and creating vistas which may transform the appearance to a surprising degree. An impression of vigor and luxuriance of growth may be produced by looking down upon foliage, which is wholly lost when trees of larger growth are used.

Again we are to consider that shrubs will give us immediate results. It requires but a year or two to bring most kinds to a good degree of effectiveness. We do not have to wait for growth, as in the care of trees, for they will at once add to the beauty of the place. They are easily manageable in size, are inexpensive, either to propagate or to purchase, and are easily transplanted. And if the arrangements and combinations shall be found at any time to be unsatisfactory it will be perfectly practicable to re-arrange.

The inflorescence of shrubs is, as a rule, conspicuous to a marked degree. There are a few of our hardy trees that are distinguished by their showy flowers, notable among which are the Magnolias, Virgilia, Catalpa, and Laburnum. But nearly all of our shrubs are gay and attractive in their flowers; and these are extended in some varieties throughout the entire season. Many are prized mainly for their inflorescence, like Roses; or like the August flowering Hydrangeas, or the Althæas in September.

And we have marked contrasts in foliage, both in the color and the form, which are readily available to produce most pleasing effects. The colors, the sizes, and the habits of growth are so well known that we can with certainty grade the combination of groups so as to crown the outline entirely to suit our purpose.

Thus we recognize in shrubs many good qualities rendering them peculiarly suited to the adornment of our suburban homes. With such material it is surprising how easily and quickly we may change the boundaries of a rectangular lot of perfect plainness and stiffness into flowing lines of grace and verdure.

And how trifling will be the cost in comparison with that of architectural additions which may seek a similar purpose. A very few dollars judiciously spent in planting shrubs will give a living beauty which in some cases may transform the whole char-

acter of a place. The charm of country life should consist, to a considerable degree, in studying the capabilities of our homes for such adornments.

It cannot have been the intent of your Committee that I should, in this supplemental paper, give a full list of the many varieties of shrubs. I will briefly name some of the more conspicuous and desirable. And of course Roses will be the first in order, by reason of the distinguishing excellence of their flowers. In this respect they are unapproached, and if maintained in vigor and perfect health their foliage is also attractive. Especially is this true of the varieties of the Japanese species *rugosa*. Unless intending to enter the lists in sharp contests for prizes, it will be wise to select the more hardy and vigorous varieties and omit many prize kinds that have too much Tea or Bourbon blood. The lists and the modes of culture have been frequently published in our TRANSACTIONS.

We hesitate to name a worthy follower of this queen of flowers. Perhaps the Rhododendron may take that rank with least dissent. Its fine persistent foliage and its large trusses of brilliant flowers, in great variety of color, are exceptionally gorgeous. We may be inclined to say, after being intoxicated with the display of some large and varied collection, that it is unequalled for landscape effect. Yet we must bear in mind that these results are not realized in general culture; that the conditions to success are absolute and that there are many localities and various purposes to which the character of the foliage and the habit of the plant are not adapted. There is also a liability to injury from the winter exposure which detracts from their usefulness in many positions.

Our native *Kalmia latifolia* can boast of clearer, brighter evergreen foliage, and exquisitely beautiful flowers which, however, are limited in range of color. It is a charming shrub when in its proper place.

The varieties of *Azalea mollis*, of recent introduction, will prove to be a great addition to our list of flowering shrubs if they are found to be sufficiently hardy. At the Arnold Arboretum they have withstood the winter without protection, and my own collection has passed the last two winters without injury. In some other places they have suffered. Their flowers approach the brilliant Indian type in substance and perfection of form, though as yet they are more limited in the variety of colors.

I would give *Viburnum plicatum* a prominent rank. The abundant globular clusters of pure white flowers are more delicate than those of the well-known Snowball and the plicated foliage is much richer and handsomer. The habit of the tree is also better and less liable to disease.

We need not fear to introduce our common little *Clethra alnifolia* into the very best society. Its sweet modesty will always have a charm. Its foliage is attractive and the delicious fragrance of its numerous spikes of flowers in late summer will be the more prized at this season when there are so few shrubs in bloom.

What a contrast there is in the immense *Hydrangea grandiflora;* grand indeed for simple show but as to modest merit laying no claim to our regard. Yet it has great value for August effect.

The foliage of nearly all the Spiræas is well adapted for grouping and for borders. *Spiræa Thunbergii*, being low, with delicate leaves and flowering very early, is well suited for the outer rank. The *prunifolia*, the *ariæfolia*, and the lance-leaved varieties would well follow and be crowned with the stronger *sorbifolia*, or perhaps better still with the upright Josikea lilac.

The Exochorda is worthy of a place by itself and is rather too open for grouping.

We have considerable range in color among deciduous shrubs and are able to make many pleasing combinations and contrasts. The Purple Hazel has very large dark rich purple leaves and is the best for strong effects in this color.

The Purple Berberry has a softer and more delicate hue which is very beautiful.

The Golden variety of the Black Elder gives the brightest yellow for enlivening. Its effect in a group is like that of a beam of sunshine.

The Golden Spiræa, if kept vigorous and well cut back, is also good for the same purpose.

Buist's Variegated Althæa is the most distinct and constant in its marking of any light variegation.

Two new varieties of the red-twigged Cornel, *Cornus Siberica variegata* and *Cornus elegantissima*, are exceedingly beautiful and effective in their bright and varied colors. They are equally hardy to endure the heat of summer and the cold of winter.

Most of the forms of the Japan Maple (*Acer polymorphum*) are delicate in growth and suffer more or less under the full glare of

our sun. The variety *atro-purpureum* has been the most vigorous and hardy with me; and its great beauty justifies any amount of care in its cultivation.

Prunus Pissardi has been received from Persia within a few years and has leaped at once into favor. Unlike the purple beech, the dark rich color of the leaves and the young shoots increases in brightness until after heavy frosts. It attains the size of a small tree, but may easily be kept as a shrub with the finest effect, if freely cut back in early spring.

The Holly-leaved Mahonia (*M. aquifolia*), which belongs to the Berberry family, is one of our finest low evergreen shrubs. Its broad, very diverse, high-colored, watered foliage is peculiarly attractive even throughout the winter, if somewhat shaded from the sun. And its clusters of bright yellow flowers in the spring are no slight addition to its merit.

The umbrageous, fern-like effect of the Cut-leaved Sumac (*Rhus laciniata*) is admirable either in a grouping or a single tree. Its colors are delicate and often brilliant in autumn.

I have already exceeded the time which was allotted to this part of your subject. With my limited space perhaps it would have been better if I had confined myself to the principles to be observed in the planting and use of shrubs. It is at once evident that we have not time to describe or even to name the many varieties of shrubs which have their individual excellencies and peculiarities suited to our varied wants.

No fixed list or rules should ever be given; a broad field should be open for constant experiment. To a considerable degree we may change the combinations of our shrubs from time to time and so secure relief from the fixed character of our buildings and also the permanent effect of our trees. Herein will consist one of the charms of a country life, that we shall go on from year to year adding, varying, and improving with ever increasing zest and a sure approach to the highest art. And we may rest assured that not only shall we succeed in beautifying our homes, but also, and this is of still greater importance, we shall meanwhile be receiving an influence from Nature's silent teachings which will prove to be both stimulating and ennobling.

Discussion.

Rev. A. B. Muzzey said that he had from childhood felt an interest in trees; his grandfather's home was nearly surrounded by them, which was a rare thing at that time. He was surprised to perceive indifference and ignorance on the part of many otherwise intelligent people in regard to tree planting. Superintendents of city streets seem uneasy as long as there is a tree that can be cut down. The chestnut tree celebrated by Longfellow stood at a point in a street where it obstructed an alderman's view, and so it had to come away; and after that the poet walked on another street. Lovers of trees have had to entreat city authorities to spare fine trees. Boston Common is now well planted with trees, which have been skillfuly set in good soil; but much too large a proportion of them are of one kind, the Linden, which is very beautiful in itself but not to be planted to the exclusion of others equally beautiful. Even in country places, where we should expect to find a love of nature and an appreciation of the beautiful, people are very careless about tree planting, and when they attempt to do something by way of improvement it is often done in so unintelligent a way as to be useless.

The subject is important under another aspect; forest destruction is going on rapidly, and the supply of lumber is diminishing. From necessity we must destroy many trees, but too many are wantonly destroyed. The speaker hoped that all present would use their influence to create a public sentiment in favor of planting and preserving trees. All have influence in regard to planting trees around their houses. In New Hampshire he had seen trees neglected by farmers, or planted so as to cut off the owner's prospect. The Sugar Maple might be planted more largely to advantage.

O. B. Hadwen said that it had been exceedingly gratifying to listen to the two papers read today, treating of subjects so near the heart of every intelligent farmer and horticulturist. Mr. Strong's list of shrubs includes the best kinds. The speaker's residence is at Worcester, at an elevation of five or six hundred feet above tide-water, and he had taken much pains in planting trees, having in the beginning all those indigenous to that part of the State. He had since added others, such as the Magnolias, Purple Beech, and Black Walnut; the latter when swaying in the wind is the

most graceful of all trees. He has a Cut-leaved Birch now twenty feet high. The Ginkgo is of slow growth but has very curious leaves. He has planted English and American oaks in variety; these are trees which we never tire of, and some of the species have leaves as glossy as if varnished. He has some of Nature's planting nearly four feet in diameter. Last winter there were two most severe ice-storms in the centre of the State, and his trees were badly broken; some a foot in diameter were broken off. The oaks retain their leaves in the winter, and these were covered with ice, adding greatly to the weight. There is a greater leverage on the limbs of the elms than in most trees; and consequently these suffered most; the White, Silver, and Sugar maples suffered somewhat, but not a limb of a Norway maple was broken. This species seems to adapt itself to all soils and situations; on the margins of streets where the soil has been taken off and the Sugar maple fails the Norway will find support. The trees form round symmetrical heads.

Mr. Appleton said he had the pleasure a short time before to pass a week in Hingham, where there are many fine trees, and called on Mr. Edmund Hersey of that town to tell about them.

Mr. Hersey said that the Holly, which is indigenous in Cohasset, near Hingham, is very beautiful, but difficult to transplant. It can be done, however, but the plants must be small. The Hemlock is most beautiful and stands the severest winters, retaining its green; he had been successful in transplanting it. The Red Cedar grows so close to the ocean as to be covered with spray; there are two varieties; that with a bluish cast should be chosen for planting. For evergreen trees, two feet high or less is large enough to transplant, and they will be sure to live. The people of Hingham have done a good deal in ornamental tree planting, with the result that they have some very beautiful trees there; this was owing to early and organized effort. He has perceived the benefit of the discussion of tree planting here, but when riding out he often sees much lack of appreciation of the beauty of trees. He once saw a beautiful pine tree, seventy-five feet high, in front of a cottage, only sixty feet from it, and standing by it was a man with an axe in his hand; he had cut the tree three-quarters down, and it was the only tree he had! This man needed to be educated. If he had been a member of this Society and attended these meetings he would not have cut the tree down.

Joseph H. Woodford said that the subject before the meeting was a most important one, and could not be emphasized too much. He had noticed the pleasing effect of tree planting, both in this country and in Europe. When, in riding over the country, we come to a place devoid of trees we think it must be a cheerless place to live in, but when we come to another where trees have been skilfully and tastefully planted we say to ourselves that this is the place we should like to live in. It is now in our power more than ever before, since a day has been set apart for the purpose, to encourage tree planting. He hoped that the approaching Arbor Day would be observed far and wide; and that town and city authorities would spend a good deal of money to give a stimulus to the observance of the day, interesting the children in the work of planting, and making a national holiday of it. It would be the best thing they could do for our country. There should be a village improvement society in every village. Every child who plants a tree in infancy will look back on it as his offspring. When a boy he brought home a load of trees from the forest and planted them by the roadside, and some of them are now two feet in diameter. He thought the Virgilia the most beautiful of all trees; there are three on Mr. John C. Chaffin's lawn in Newton, fifty feet high, which in their season are literally loaded with flowers, and with these and the ten thousand roses in bloom on the same grounds the air is filled with fragrance.

Mr. Strong said that there is no better tree than the Virgilia; the wood is very brittle but it does not suffer so much from breaking as other trees. In his observation the oak has suffered most. The Virgilia is more upright and does not hold ice so much; the inflorescence is exceedingly beautiful. He wished to give a caution in regard to the hemlock; in the wind it is one of the most tender trees we have. It is not a tree for an exposed place, suffering from the wind far more than the Norway Spruce. The Blue Spruce is more hardy than the Norway and more beautiful when young, but it is still a question whether it will be more beautiful in age.

Henry Ross confirmed the caution given by Mr. Strong in regard to the liability of the hemlock to break in the wind. He was surprised and greatly disappointed when he found it so tender, and he had also found it difficult to transplant. He would not recommend the American Chestnut; it is the dirtiest of all trees, drop-

ping first its flowers, then its leaves, and then its burs. Worst of all it attracts mischievous boys — not maliciously mischievous but knowing no more than he did when a boy. The White Oak is one of the most beautiful lawn trees, but objectionable from its habit of holding its old leaves until the last of May. When asked how large a tree to plant he has advised to put one dollar into the tree and two dollars into the preparation of the ground for it; then in five years you will have a tree worth looking at. Don't reverse the process and put two dollars into the tree and only one into the ground.

Mr. Ross thought the selection of trees by Mr. Appleton and that of shrubs by Mr. Strong both admirable. The Norway Maple is a favorite with the red squirrels, who gnaw off the bark to get at the sweet sap, as they do with the rock maples also; and this causes the branches to die. Shrubs are of great value in small grounds; in a plat of only a quarter or half an acre in extent you cannot have a great noble tree, but you can have shrubs.

Mr. Hersey said that the hemlock is very difficult to transplant when large, but seedlings not above six inches high are transplanted easily. He dug up trees five or six feet high and set them out with the greatest care ten years ago, and they have not got over the effect of the transplanting yet.

William D. Philbrick had found the hemlock very unsatisfactory as a hedge tree. He planted two hundred very beautiful ones, which after five or six years began to die off, one or two at a time. He considered the red squirrel a nuisance from its habit of destroying pears by the bushel to eat the seeds, and of robbing birds' nests in June of the eggs and young birds. One squirrel will take off a peck of pears in fifteen minutes.

Mr. Strong said that the hemlock is not very difficult to transplant when two or three feet high. The roots must not be allowed to get dry. Mr. Philbrick's trees were probably too crowded. It is a magnificent tree in a sheltered place, but it will not endure high winds.

Mr. Hadwen said that more than thirty years ago he planted large hemlock trees which he took from the woods with balls of earth, and they are now fine specimens, forty feet high. They do not like dry and gravelly soils, and are killed by severe autumn droughts. He thought it would be an excellent plan for park commissioners in cities and the selectmen of towns to give trees for

planting on Arbor Day; in Worcester the park commissioners gave over a thousand trees. People who have a tree given them will set it out when they will not buy one.

The Chairman thought the hemlock one of the most beautifnl of all the conifers; he has two or three which he would not part with on any account. He has not succeeded with the holly. He thought very highly of *Andromeda floribunda* and *A. speciosa* as early flowering shrubs. He was very much interested in the subject under discussion, and glad to do something to promote it, though in a humble way. When he began thirty years ago his elms were fifteen feet high, and now they are sixty, and his evergreens have grown proportionately. He has in his trees gray, red, and striped squirrels; and a colony of crow blackbirds, besides other birds, all of which he encourages.

Mr. Appleton said that there is in his neighborhood a bank about six hundred feet long with a northerly exposure, on which hemlocks are growing thriftily though the soil is quite gravelly, and this fact would seem to be an argument that hemlocks would do well in such locations when once established.

Mr. Hersey spoke of a gentleman who found one side of his cornfield eaten very badly; he went up with his gun and killed one red squirrel, and on opening its stomach he found in it one kernel of corn and thirty gray cut-worms.

The announcement for the next Saturday was "Horticultural Reminiscences," by Hon. Daniel Needham.

BUSINESS MEETING.

SATURDAY, March 26, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

No business being brought before the meeting, it was dissolved.

MEETING FOR DISCUSSION.

Horticultural Reminiscences.

By Hon. Daniel Needham, Groton.

Mr. President, Ladies, and Gentlemen : It is with no ordinary feeling of interest that I stand here for a brief time to address you upon a subject assigned to another — to one whose very name is synonymous with the growth, progress, and development of horticulture in America. The lips of that great good man have been sealed by death ; but the utterances of his life will forever remain to bless mankind. It is a compensating reflection that although the physical life may depart, the results of that life, like the flow of the river which has its head waters in the springs of the distant mountains, may yet go on forever. The name of Marshall P. Wilder will long continue a recognized name in every department of human industry based upon agricultural development throughout the civilized world, and his patient industry and careful studies in connection with plant life and growth will continually serve to encourage the young and aid the mature worker, in labors promotive of the interests of the husbandman.

It was in my early student life, at a boarding school in the city of Providence, that I took my first lessons in horticulture. At this school it was the prescribed duty of every male student to cultivate a small tract of land ; and for this purpose a lot of about a rod square was assigned him ; each lot bearing a distinguishing number. The student was furnished with sufficient barn-yard manure for fertilizing purposes, and was expected to exercise his own judgment in its use and application. Student labor spaded the ground thus assigned, pulverized the soil, worked in the manure, and planted the seeds. Every student exercised his own taste and judgment in the selection of the crop. It might be flowers — it might be vegetables for the table — it might be bushes for the production of small fruits, like the currant or other berries.

It was expected that this patch should be thoroughly tilled, kept free from weeds, and turned to the best account in accordance with the knowledge, skill, and industry of the student. Twice a month during the summer season there was inspection by the gardener,

and a report was made on each patch, the gardener having no knowledge of who was the keeper, and reporting solely by the number of the lot. In the season of harvest the steward would buy the products of the lot, and pay for them at the regular market price — so much a dozen for radishes, so much a quart for berries — the market price for everything produced; the product entering into the table supply for the institution. No charge was made for the use of the ground or the manure. Marks of merit, or demerit, were entered against the name of the student whose number was reported by the gardener with words of commendation or complaint.

The inducement to till this bit of land well was very great. The large plot of ground thus laid out for voluntary student work was a most interesting feature of the school. I do not remember the size of the combined lots, but I do remember that freedom from weeds and general good culture were everywhere apparent.

There were two stimulating influences brought to bear upon this student work; first, the hope of securing a good report from the gardener; second, the desire to realize as much as possible from the sale of the products. No particular hours were set apart for this labor. Any time out of school hours might be taken, at morning, noon, or night; the matter being left entirely optional with the student.

The great gains to a young man from being trained in such work are not easily computed. He is started, at the earliest physical development, in the study of great practical ideas. He is made to consider the character of soil; its preparation; its adaptation to the different sorts of vegetables or shrubs; and the planting and covering of the seed. He gains instruction by his early study of the product of the planted seed in order to distinguish it from the weeds, which start at the same time and often with a greater vigor; by his daily watching, not only for growth and against interference by the weeds, but against enemies from the animal kingdom that creep and crawl and fly; by his preparation, at maturity, of the crop for market so as to present it to the steward in an attractive form; and by the knowledge acquired of the value of market products and the time and labor necessary for their production; and he is benefited most of all by the health and vigor of body and mind imparted by the work, and by the cultivation of habits of industry, and the turning to good account

many hours in a month which might have sought in vain for an equal amount of valuable manly recreation elsewhere.

Consider how much more happily adapted to the development of a man, and to qualify him for a contest with the difficulties which every young man is to meet, was this simple training than the pastimes now popular with young men in our more modern schools and seminaries of learning. Here was the work of the gymnasium, the boat race, the base ball game, all combined in a harmonious, useful, natural, and attractive form, and exempt from the peril of broken limbs which attends the rivalries of the gymnasium; of useless straining of muscles which belongs to training for boat races; and of broken noses, fingers, and thumbs which uniformly attaches to contests of base ball.

From the gymnasium, the boat race, and the ball game there may indeed be acquired some physical training, affording partial compensation for the abnormal risks entered into; but in the culture of that little patch of soil there was always gained not only the delightful vigor which comes from out-door recreation, but a mental training enabling the student mind in after years to grasp the problem of life — already more than half solved in his early work upon the school garden.

It goes without saying, and need not be demonstrated by logic or illustrated by figures of speech, that there is physical energy enough wasted every season by the students of Harvard College to carry on a truck garden which would supply very largely the vegetable markets of the city of Boston. And would not such productive labor be better for the students in preparing them physically, mentally, and morally for the great work which all schools and universities are founded to carry on?

What better is it for the young man that he is a skilled puller at the oar, or a quick catcher of a ball? The answer is not apparent. But when it is asked what better is it for the young man that he has spaded and pulverized the soil, mixed the fertilizer, planted the seed, watched the early shoot, fought with great heroism and success weeds and worms and insects, produced and marketed a crop — you need not wait to frame a reply, for the answer is ready at your tongue's end and everybody at once acknowledges its truth.

Not that I would confine recreation for the young men solely to that obtained in work. With us at the school there were hours

enough for innocent amusements outside of the time required for garden service; and marbles and foot-ball games and old fashioned bat and ball were enjoyed with all the more relish for the practical labor expended on the soil.

The most lasting and permanent of all recollections are those associated with the land. They strengthen with increase of years, and bring back to old age bright visions of the native hearthstone. Manhood struggles through mechanical and commercial pursuits, that it may spend its declining years upon the hill-sides and meadows where cluster the memories of youth. The boy who goes out from the farm to mechanical and commercial industries looks back perhaps indifferently in the prime of his manhood to the long days of his early toil on the land; but his love of the excitements of trade abates, as age advances and the years bring gray hairs and baldness; and as, in the near future, he sees himself again owning the homestead farm and surrounded on his broad acres by his sons and grandsons.

Say what we will, the ideals of life are infinitely more to us than the realities. The ideals have made civilization. The enthusiasts who have been looked upon with pity have laid the foundations upon which all that is most useful in natural product and artificial life has been created. By the ideal we make possible the seemingly impossible; or rather it is the ideal which gives birth and existence to the real. The ideal develops manhood a thousand fold faster than the cold practical—and this same practical, however familiar and unimpressive now, was once itself an ideal.

The dreamers have made the flowers, whose odors and beauties prove the poverty of language when we attempt to put in words the ecstacy they bring; they have made the fruits, whose delicious juices invigorate humanity, and lead, through the means of the physical, the soul and mind high up in the spiritual and intellectual spheres; they have made the vegetables, which have multiplied in numbers and excellence of variety until the garden has become the best source of health and vigor.

No man sets his aim so high as the one who takes for his study the soil and its creations. To deal with natural law understandingly requires far closer study than to comprehend the mere police regulations which society and communities of men have woven into statute law.

Natural law is infinite. A few of its results in hybridization

have been observed by careful students, but it has no limits; it is on and on and on — and the most patient and painstaking observer, after the study of a long life, finds himself just entering upon the threshold of his work. Artificial diversification of fruit and flower may possibly be of modern origin, but natural hybridization has been at work since the earliest development of plant life.

It is by suggestions such as occur to the young when cultivating an intimate relation with the vegetable economy that great possibilities are generated — not only in the vegetable kingdom, but throughout the world of matter. The primary school and the co-operating higher institutions of learning can never lay the foundations of deep research in any other way. And this practical study of the soil and its productions should not be limited to young men — young women should share not only in the vigor which such practical work gives to the body, but in that which it affords to the mind. Encouragement to strive for and seek the unattained but possible is no less valuable in developing a full womanhood than in working out a complete manhood.

Many of our leading educational institutions for women are in advance of those for men, inasmuch as they insist on the performance of certain amounts of student labor in practical housekeeping — making bread, cooking meats, washing dishes, and other detail work — such as is required in the domestic economy. This has proved a most attractive feature in the education at Vassar and Wellesley, and at other great leading female seminaries in America. This might with great propriety and success be supplemented by practical horticulture, educating young ladies to produce their own flowers as well as to arrange bouquets.

So good success has attended the practical work of housekeeping as an educational measure, since its introduction into some of our institutions, that young and middle aged women who have heretofore failed to secure the benefit either of home or school training in this direction have patronized and are now patronizing cooking schools; which moreover are largely supported by well recognized leaders in society in our large American cities.

In a time when the value and necessity of this practical domestic education is almost universally acknowledged, I am quite astonished at finding a communication, published this present month, in a leading religious paper in the city of Boston, discouraging any attempt or ambition of young ladies to qualify themselves for

the duties of housekeepers. The views of the writer are expressed in a three column article, and I cannot do better than to quote some of her words, from which it will be seen that there is quite a strong opposing sentiment already in force, tending to destroy this good work which our leading female educational institutions have inaugurated with so much success and to such popular satisfaction.

The writer addresses herself to a young lady who is about to be married to a man in comfortable circumstances, and she says:—

"Have nothing but what your servants can prepare, and expect them to prepare it. Put up no jellies or preserves that you would have to make yourself. What your servants can't make, and you can't afford to buy, *do without*. So I will give you a few facts about three young ladies of my acquaintance, who married without knowing a single thing about practical housekeeping. One of them was musical, and one was artistic, and one was literary; and their mothers had — wisely mind you — spared them all drudgery. Great, however, was the chorus of dismay when they married.

All of them married well, just as you are going to marry — into circumstances where they would not have a butler or a lady's maid, but where they would have two good servants. At the end of three years, I happened to meet all three of them at luncheon. 'Well, my dears, and how have you succeeded in housekeeping?' 'Beautifully!' they all exclaimed. 'But how did you learn?' 'We haven't learned,' they exclaimed together. 'We don't know anything more today, than we did the day we were married. But we haven't had a bit of trouble.'

'Mother told me,' explained the young musician, 'that even if I did have good servants I could never manage them in the world unless they saw that I knew how to do things and could correct them. But, dear me! it didn't make a bit of difference. If Bridget brought in griddle-cakes that were too thick, I could see perfectly well that they were too thick, and I told her to take them out and thin them; and it did not in the least matter that I didn't know whether she thinned them with milk or water.'

'Know!' exclaimed the young artist. 'Why, I not only didn't know, but I made a point of not knowing. If Bridget came to me and said, "If yez plaze ma'am, can you tell me how to cook the cauliflower?" I just drew myself up very loftily, and said, with an air, "*I?* cook a cauliflower? Certainly not. I don't know how to

cook. I am an artist. *You* are the cook." And it worked just like every other law of supply and demand. I expected her to cook, and she cooked.'

Of the experience of the literary young lady, I know still more. She has now been married more than ten years. She has given every order for every meal, kept all her expenses, kept them rigidly, too, within the limit fixed by her husband as permissible, done all her marketing, and knows no more today how bread is made or how meat should look to be tender or how to judge a chicken or make a custard pie than if she had never kept a house."

This with a large amount of other matter of the same tenor, intended expressly to influence young ladies in their early domestic education, appeared in a leading religious paper of this city without one word of editorial comment, thus reaching the public with the full force of the editorial influence of the paper.

The writer of the article has announced that girls are all to marry husbands who can keep two servants. She gives no thought to the consideration that fortunes which have been inherited and have furnished the basis of early housekeeping are often swept away by some vicissitude of business relations, or by depreciation in value of real or personal property; that a young man who starts out well to do in this world's goods, even though the property has been accumulated by his own industry, may, by the fluctuations of trade, or through misplaced confidence, or by the laws of the elements over which he has no control, meet with reverses; and that he may not only become unable to keep two servants, but he may be driven to the necessity of depending solely upon his wife for all the domestic household labor.

Nor does the writer of the article quoted take into consideration the thousand and one young ladies destined to marry men who will be unable to keep any servants to aid in the domestic work. Yet any one of these young ladies is liable to read that article and be influenced by it, and to have her ideas of her later life more or less fashioned under its influence. Such an article published by an eminently respectable religious paper, entering thousands of homes, might have an influence as extensively pernicious as any of the hundreds of dime novels which would not be allowed place in the family library.

To teach the young women that the necessary practical labor of the household is so uninviting that it should be shunned and that

all attempts to master a knowledge of it should be avoided is to stimulate an abnormal desire for wealth, which in a large proportion of instances would result in hopes not realized, and happiness not secured.

The work of teaching practical housekeeping has been well begun in our female seminaries; where the great fact is wisely inculcated that every woman as well as man has work to perform; and that, in spite of diverse home conditions or other human relations, a knowledge of that work may become essential to the happiness not only of one woman but of a whole family. If practical horticulture could now be added to the curriculum, the outdoor recreation which would result would add vigor to the body, freshness to the mind, and stability to the health of the graduates of our institutions for the education of young women.

As regards the institutions established for the education of our boys and young men, it may be said that it would be unpopular and therefore inexpedient to introduce practical horticulture into them. But the practice of horticulture in all its details by boys and men need not be any less attractive, surely, than the process of dish washing and bread making and sweeping and dusting to young ladies.

Again it may be argued that the larger portion of our young men in academies and colleges are from the country, and so have had a practical schooling in the outlines of what we propose they should be taught. This argument cannot be sound, for it equally applies to the young ladies who gather at Wellesley and Vassar. They have made bread and washed dishes and swept the floors and dusted the furniture in their own rooms; nevertheless it is an almost universally accepted fact that this radical innovation upon the routine of the school has been attended with grand results.

This work of the domestic household and of horticulture in the schools we hope and believe will be widely extended and conducted in a systematic way, and the great variety of useful results to those so disciplined will never be exhausted until death.

At the present time there is a growing dislike to all physical labor among our native born population. Domestic labor has no support from the novelist among his female heroines, and the ploughboy long since ceased to be taken as his hero. The lady with waiting-maid and lackies in livery and the adventurer who is a banker or a railroad king have taken the places of the heroines and heroes

of a hundred years ago. Nevertheless if we expect to retain our preëminence as Americans we must create and cultivate a taste for physical labor among the generations which succeed us; otherwise our adopted citizens will soon rule and lead the land.

All men have an instinctive ambition to own land; and we know moreover that from some mysterious and not easily defined cause ownership of the soil has a wonderful influence in developing good citizenship, and establishing individual influence and personality. Of course the acquisition of land must be through the accumulations of industry, unless by the accident of inheritance; and the chance of long entailment by inheritance, where there is no law of primogeniture, is very small.

Our citizens of Irish birth have left the leasehold lands of Ireland, not because they could not pay the mere moiety of rental, but because they want the pleasurable satisfaction of absolute ownership. So they have come to America, and the Bridgets have gone into the kitchens, and the Patricks have gone into the field, and the savings banks of the country have been built up by their deposits. From time to time they establish marriage unions, and draw on the savings banks and buy and build homes; and in my own town, where in 1842 we had hardly an acre of land owned by a son of Erin, today we have hundreds of acres of well tilled land and scores of homes owned by these men who are not ashamed to work and who are fast becoming the owners of our soil.

Unless something is done to inspire and educate the rising and future generations of our young men to a love of the soil and its culture, we shall see the sceptre of power more and more rapidly passing from the hands of the native born and native bred Americans.

The key to power is wealth, the key to wealth is agriculture, the key to agriculture is knowledge and industry; and if the adopted citizen maintains his persistent industry, and the native born finds contentment in idleness, the future of the Republic can be easily read.

Discussion.

Rev. A. B. Muzzey was called on by the President, and said that he was fully in accord with the tone of the paper which had been read. We must sooner or later wake up to the importance of edu-

cating youth in habits of industry and a knowledge of practical life. He had been surprised to see the feeling of young men in regard to manual labor. We should not think of teaching German to a person going to reside in France, nor should we fill the heads of children with things that they can never make use of, leaving them ignorant how to supply the common wants of life. He hoped to see more attention given to industrial education and hoped to see horticultural labor embodied in it. There is no greater incongruity than in training young men or women to imaginary positions which few of them will ever occupy. The training of our schools is excellent so far as the intellect is concerned. The speaker mentioned a case within his own knowledge, where a young woman after her schooling was over spent her time in reading novels from a circulating library, until she married a rich man, and then her ignorance compelled her to ask a skilful house-keeper how to take care of her home. Her marriage was a sad misfortune ; her life was spent in dissatisfaction and was most unhappy, for her resources were exhausted. So with regard to young men ; he had seen many a gay young man whose father had accumulated a fortune, but who had never been trained to self-reliance, unhappy for want of occupation for mind and body, It is wisely ordered that the human mind cannot be happy without employment. Young men join clubs because they feel the want of something to fill their empty minds. There is no better place to begin the greatly needed change in education than in our schools. The speaker said he was heartily interested in our industrial schools. The absence of editorial comment on the article quoted by the essayist from a religious newspaper was in effect a most pernicious comment.

Benjamin P. Ware said that a very broad subject had been opened. The essayist's description of female seminaries reminded him of what has been done for young men in our State Agricultural College. The students are taught agriculture practically, and inducements are offered to them to earn money. Poor boys who come there with little or no assistance from their parents can get a practical education. In other states there are similar colleges under similar management. It is the duty not only of our people but of our legislators, to provide practical education for our young people. The scholars in our schools have found when graduated that they knew nothing practical. There must be something wrong

in such an education as that. Our high schools graduate the sons and daughters of laboring men, and then the question with them is, What next? They have been so educated as to look for something very different from manual labor. They look about for positions; and after waiting for months may find a vacancy to teach. Boys starting in life are educated away from the idea of labor. They look for places in counting-rooms, but there are plenty of rich men's sons who will take these positions for fifty dollars a year, and others are forced to go into retail stores where they get only enough to pay for their board and clothes. The educational conditions here are revolutionized. The system of manufacturing also is entirely changed; years ago apprentices were wanted, but now they are not. Formely one man made a shoe complete, now it takes thirty-five men to make one, and each man is narrowed down to one thirty-fifth of a shoemaker. This increased facility of manufacture is a benefit to the community, but you cannot get a boy into a manufactory to learn a trade. He knew of a boy who wanted to learn the machinist's trade, and went to the foreman of a machine shop, who informed him that they did not take apprentices; and it became a question how he should get the training he desired. If it cannot be obtained in shops we must have schools to supply it.

William C. Strong said that he had been much interested in Col. Needham's paper, though it was quite different from what he had anticipated. The system of garden work in the school at Providence as pictured by the essayist was admirable; he did not feel quite sure that we had made advances on it even in the agricultural colleges. The system of stimulating the industry of the boys was excellent.

O. B. Hadwen spoke of the great value of the school at Providence described by the essayist, where he also was educated. Though only eight years old he recollected the ploughing of the ground before the spading, which was all done by the boys. These plots presented as good a garden as could be found anywhere. He planted radishes on the margin of his plot, and melons inside; and took great pride in them; flowers were also grown. This was his first experience in horticulture, and he worked early in the morning and at the recess of fifteen minutes, watching carefully the sprouting of the seeds and the progress of the plants. Such has been the advance of horticulture since then

that the whole wealth of the country fifty years ago could not have produced such an exhibition as we had in our own halls this week, and it was mostly the contribution of those who cultivated flowers for the love of them.

Robert Manning related a reminiscence of a gentleman who came into one of the dahlia shows of this Society about fifty years ago, when the culture of that gorgeous flower was carried to a greater extent than now, and was so struck with the beauty of the show that, though his time was almost incessantly occupied with commercial affairs, and though he possessed only a few square feet of garden in the rear of his city dwelling, he determined to buy a few plants. In the spring he carried out this purpose and in autumn he was repaid by a brilliant show of flowers. Another year the number was increased and he was equally successful. Delighted to find himself so well repaid (unaware that his success was entirely owing to the love which spared no pains for the welfare of his plants) he procured the newest and finest sorts, and another season not only became a competitor for the prizes but actually carried off some of them.

But with a few feet of land already over-filled there was no room for further additions to his stock, and he must either have more land or fewer plants; the latter he could not do, and another hundred feet, worth almost as many acres a few miles from the city, was added. But now other objects attracted his attention. The grand displays of fruit were so rich and inviting that he could not consent to be merely an admirer of them. So the corners of his garden were filled with young pear trees, which flourished as well as the dahlias, but made sad inroads on their territory. As time rolled on golden fruit hung from their branches, and a rich harvest crowned the labors of the cultivator of the city garden.

This zealous cultivator was Josiah Stickney, whose name is familiar to all the members of this Society. His garden then was at No. 116 Tremont Street, not far from where the Society's building in which this meeting was assembled was afterwards erected. In 1844 Mr. Stickney purchased the estate of Madam Hunt, occupying an elevation on the left bank of Charles River, in Watertown, where the mansion forms a conspicuous object to the view of travellers by the Boston and Albany Railroad, on the other side of the river. Here he formed terraces on the river bank, which he planted with pear trees. Other plantations of pear trees

were also made, and all his cultivation was done in the most thorough manner, a pond fortunately situated supplying facilities for irrigation, the importance of which was not then as well understood as now.*

Mr. Stickney was afterwards elected President of this Society, and by establishing a fund for the increase of the library became the means of its possessing the best horticultural library in this country if not in the world. Standing in the midst of this invaluable collection of books, we might say of him in the often quoted words inscribed on the monument of Sir Christopher Wren in St. Paul's Cathedral — "If you seek for his monument, look about you."

The speaker added that frequently as he looked on such exhibitions of the Society as that which closed the previous evening, he had wondered whether there might not be present some embryo cultivator, imbibing such a love of horticulture as that which produced so admirable results in Mr. Stickney's case. And the lesson he would draw from this reminiscence was that we should all strive to make our exhibitions as good as we possibly can, in order to attract those who may be thereby led to become skilful cultivators and benefactors to the Society and the community.

President Walcott, alluding to the unsuccessful effort which had been made to obtain a site on the Public Garden for a more commodious building for the use of the Society, added to the motive mentioned by the preceding speaker for making our exhibitions as good as possible, the desire to increase public interest in them, and secure the favor of the community for whatever plan might be adopted to provide more spacious halls for the exhibitions of the Society.

Mr. Manning thanked the President for supplementing his remarks, and desired to add still another reason why every one of those present and every member of the Society should do all in his power to procure enlarged rooms for the Society, viz.: that the accommodations for the library for which we are so largely indebted to Mr. Stickney's liberality are now so extremely inadequate, and are every day becoming more insufficient.

Mr. Hadwen, as Chairman of the Committee on Publication and Discussion, announced that this would be the last of the series of

* Hovey's Magazine of Horticulture, September, 1852, Vol. XVIII, p. 420.

meetings for the present season. The Committee had endeavored, and he hoped not without success, to procure such papers that the tendency of the meetings would be to elevate horticulture ; and he believed that, when published complete in the TRANSACTIONS (as they had already been, partially, in weekly reports), they would be found a valuable addition to our stock of horticultural information.

The meeting then adjourned without day.

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society,

FOR THE YEAR 1887.

PART II.

BOSTON:
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BUSINESS MEETING.

SATURDAY, April 2, 1887.

A duly notified stated meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

The annual report of the Treasurer and that of the Finance Committee were read by the Secretary, accepted, and ordered to be placed on file.

The report of the Committee on Publication and Discussion, awarding premiums for the best reports by awarding committees, was read and accepted.

The appropriation of $100, recommended by the Executive Committee on the 26th of February, for prizes for the encouragement of Window Gardening, came up for final action, and was confirmed by the Society. The schedule of prizes for this object, presented by the Committee for Establishing Prizes, was adopted. Mrs. H. L. T. Walcott, Mrs. E. M. Gill, Mrs. L. P. Weston, Miss S. W. Story, and Mr. M. B. Faxon, having been nominated by a Committee appointed for that purpose, were elected a Committee to take charge of the exhibitions of Window Gardening, and award the prizes therefor.

On motion of William H. Spooner, it was voted that the Committee on Plants and Flowers be requested to consider the propriety of adopting the standard established by the National Rose Society of England, for roses exhibited.

Joseph H. Woodford read a communication in regard to the funds presented to the Society by Samuel Appleton, John A. Lowell, Theodore Lyman, Josiah Bradlee, Benjamin V. French, H. H. Hunnewell, Dr. William J. Walker, Josiah Stickney, and Levi Whitcomb, and offered the following votes:

Voted, That the Treasurer of this Society shall open an account with each and every permanent fund (describing the fund) on the books kept by him, crediting each fund with a fair rate of interest, to be determined by the Finance Committee annually, and charging said incomes with any awards made in prizes by the Committees established for awarding prizes.

Voted, That the Committee for Establishing Prizes be instructed to apportion these prizes according to the terms of the bequests, and that the prizes be offered under their proper headings in the next and succeeding Schedules of Prizes of this Society.

Both these votes were unanimously passed.

Mr. Woodford also moved that the following inscription be placed upon the face of the clock in the Lower Hall: "Presented to the Massachusetts Horticultural Society by John J. Low, April 5, 1845," and this vote was unanimously passed.

The following named persons, having been recommended by the Executive Committee, were, on ballot, duly elected members of the Society:

George E. Crosby, of West Medford.
Col. Solomon Lincoln, of Boston.
James R. Pitcher, of Short Hills, N. J.
Stacy Hall, of Boston.
Francis H. Kidder, of Medford.
Charles P. Bowditch, of Jamaica Plain.

The following named persons were, upon recommendation of the Executive Committee, elected Corresponding Members of the Society:

Henry John Elwes, F. L. S., F. Z. S., Preston House, Cirencester, England.

George Maw, F. L. S., etc., Benthall, Kenley, Surrey.

W. T. Thiselton Dyer, F. R. S., Director of the Royal Botanic Garden, Kew, England.

D. Morris, Assistant Director of the Royal Botanic Garden, Kew, England.

Maxime Cornu, Director of the Jardin des Plantes, Paris.

Henri Levêque de Vilmorin, Secretary of the Société Nationale d'Agriculture de France, Paris.

Edouard André, Editor-in-chief of the Revue Horticole, Paris.

Ch. Naudin, Antibes, France.

Dr. Ch. Bolle, Berlin, Prussia.

C. J. de Maximowicz, St. Petersburg, Russia.

Charles Gibb, Corresponding Secretary of the Abbotsford (Quebec) Fruit Growers' Association.

Professor D. P. Penhallow, Director of the Botanic Garden, Montreal.

Robert Douglas, Waukegan, Illinois.

T. T. Lyon, President of the Michigan Horticultural Society, Grand Haven.

Professor J. L. Budd, Secretary of the Iowa Horticultural Society, Ames.

Dr. Charles Mohr, Mobile, Alabama.

Adjourned to Saturday, May 7.

BUSINESS MEETING.

Saturday, May 7, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President William H. Spooner in the chair.

The Chairman reported from the Executive Committee the following vote, the passage of which was recommended by the Committee:

Voted, That no Medal or Certificate of Merit shall be awarded without the written assent, at the time of award, of at least five members of the Awarding Committee, and a written statement of the reasons for the award.

The vote was unanimously carried in the affirmative.

Robert Manning announced the decease of Henry A. Breed of Lynn, one of the founders of the Society, and moved the appointment of a Committee to prepare a suitable memorial of Mr. Breed. The motion was carried, and the Chair appointed as that Committee John G. Barker, O. B. Hadwen, and Robert Manning.

George Hill announced the decease of Josiah Crosby, and moved the appointment of a Committee to prepare a memorial of him. The motion was carried, and the Chair appointed as that Committee Col. Henry W. Wilson, Charles N. Brackett, and George Hill.

The Secretary laid before the Society letters from W. Thiselton Dyer, D. Morris, Maxime Cornu, D. P. Penhallow, and T. T. Lyon, acknowledging with thanks the receipt of the notices of their election as Corresponding Members of this Society.

The following named persons, having been recommended by the Executive Committee as members of the Society, were, on ballot, duly elected:

Miss Helen Collamore, of Boston.
John Henderson, of Flushing, N. Y.
Charles Anderson, of Flushing, N. Y.
Charles F. Evans, of Philadelphia.

Adjourned to Saturday, June 4.

BUSINESS MEETING.

Saturday, June 4, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Henry P. Walcott, in the chair.

John G. Barker, Chairman of the Committee appointed at the last meeting to prepare a memorial of Henry A. Breed, reported the following:

The Massachusetts Horticultural Society views with deep emotion the departure, one by one, of those who laid its foundations and watched over its early years.

They have now to mourn the loss of Henry Allen Breed, the last but one of the sixteen gentlemen who, on the 24th of February, 1829, met in this city to establish a horticultural society; one who, in the fifty-eight years which have since elapsed, has seen the institution, then begun in weakness, grow to strength and influence; whom in recent years, after a long and eventful business career, we have welcomed at our meetings, where his presence has

testified to an unabated interest in the welfare of the Society; and who has rejoiced with us in its progress.

Yet while we lament the loss of the presence of this venerable founder of the Society at our meetings, we are consoled by the thought that his decease was not untimely, but that he "came to his grave in full age, like as a shock of corn cometh in his season," and after he had lived to see the Society attain a growth far beyond what he and his associates could have anticipated when he assisted in laying its foundations.

JOHN G. BARKER,
O. B. HADWEN, } *Committee.*
ROBERT MANNING.

Mr. Barker added that for the last fifteen years he had been intimately acquainted with Mr. Breed, and testified to his unabated interest in this Society, which he loved next to his church. He always mentioned the name of Col. Wilder with the highest respect and regard. He built the first greenhouse and laid out the first flower garden in Lynn. He was a man of great enterprise, as is shown by the fact that he laid out thirty-five streets in Lynn. He met many changes, and some very serious ones, but always rallied from them, and was always ready to promote every good work.

Robert Manning spoke of the gratification which Mr. Breed always felt in visiting the rooms of the Society and witnessing its prosperity, and of the pleasure with which he received his calls. Only a few weeks before Mr. Breed's death he stopped in Lynn on his way home, one Saturday afternoon, and gave him some flowers from the exhibition of that day, with which he was much pleased, and it was his intention to make a similar call on his eighty-ninth birthday, which would have been on the 21st of April, but he died a few days before that time.

The memorial was unanimously adopted, and it was voted that it be entered on the records, and that a copy be transmitted to the relatives of the deceased.

Col. Henry W. Wilson, Chairman of the Committee to prepare a memorial of Josiah Crosby, read the following:

Josiah Crosby was born among the hills of Ashburnham, in Worcester County, on the 6th of April, 1805, and died in Arlington, of pneumonia, after a brief illness, on the 4th of April, 1887, lacking but two days of having completed his eighty-second year.

He was the son of Frederick and Martha Maynard Crosby, and, after receiving the primitive education of the country district school of eighty years ago, was reared as a farmer. Arriving at manhood in 1826, he turned his steps toward the old town of Dorchester, whence the early settlers of his native town had gone forth, and where he continued to reside until 1834, when he married Lydia Everbeck, May 24, and removed to Roxbury, where he lived with Aaron Davis Williams. His wife Lydia died June 8, 1841, and on the 27th of December, 1842, he married Alice Ross, who survives him.

He continued to reside in Roxbury until 1847, when he removed to Arlington, where, after three years' residence, he made his home on Lake Street, at what is now known as Lake Station, where he began an experience of nearly forty years as a market gardener, in which he had no superior and few equals.

He joined the Massachusetts Horticultural Society in October, 1850, and was for fourteen years, from 1872 to 1885 inclusive, a valuable member of the Vegetable Committee. He joined the Massachusetts Agricultural Society August 17, 1867.

He was very fond of the pursuit of agriculture, in which he enjoyed an enviable reputation, and took a sincere and honest pride; he earnestly strove to attain excellence, and in the effort to improve the quality of market vegetables he originated the excellent variety of sweet corn which was named for him.

He was not a man to be interested in theology in the abstract, but he was for years a member of the Orthodox Congregational Parish of Arlington, a constant attendant at public worship, and a believer in the Christian faith, although not a communicant.

Upright and downright, with a heart free from guile, he implicitly followed the teachings of the Golden Rule, as a part of his nature, rendering to every man exact justice, and doing to all others as he would desire to be done by.

He had little taste for literature or art, and the only field sport that he enjoyed was that of rifle-shooting.

Fond of children and pets, his life flowed on serenely to its close, and the sincerity of his character was best evidenced by the attachments which were formed for him by the men of a younger generation.

Lamenting as he did in later years the defects of his early education, he was constant in his efforts to aid in the improvement of

others; and the only public office which he ever held was upon the School Committee of Arlington, to which he was elected for twenty-one consecutive years, and in his honor the Crosby School was named.

Nine children and four grandchildren survive him.

His funeral, at his late residence, April 6, 1887, was attended by a delegation of the Massachusetts Horticultural Society, and his remains were interred in the Mount Pleasant Cemetery of Arlington.

In view of his many excellencies as a man, together with his long continued and useful services to this Society and to the science of horticulture, the Massachusetts Horticultural Society desires to express its appreciation of his worth; and although his life was spared beyond the allotted span and he died full of years, yet it sincerely deplores and mourns his loss.

In the death of Josiah Crosby the Society loses a member whose labors as a horticulturist had been very successful, and whose disinterested efforts to advance the interests of the Society had been manifested during many years and in many ways.

In testimony whereof your Committee recommend that the Secretary be directed to enter this expression of regard upon the records of the Society, and transmit a copy to the family of our deceased friend; also to preserve this memorial of his life in the files of the Society.

Respectfully submitted,

HENRY W. WILSON,
GEORGE HILL,
C. N. BRACKETT. } *Committee.*

The memorial was unanimously adopted.

The vote passed at the last meeting of the Society, concerning the award of medals, appearing to conflict with the Constitution and By-Laws, was, on motion of William C. Strong, reconsidered.

Mr. Strong then moved that a Committee of five be appointed to consider what amendments to the Constitution and By-Laws, in regard to the award of medals, the various funds given to the Society, or other points, might be necessary. After discussion by Mr. Strong, Joseph H. Woodford, John C. Hovey, William H. Spooner, and O. B. Hadwen, the motion was carried, and the Chair

appointed as the Committee, William C. Strong, William H. Spooner, E. W. Wood, Solomon Lincoln, and John B. Moore.

The Secretary laid before the Society letters from Henry J. Elwes, Ch. Naudin, and C. J. Maximowicz, accepting with thanks the Corresponding Memberships to which they had been elected.

George G. Tarbell, M. D., of Boston,

having been recommended by the Executive Committee, was, on ballot, duly elected a member of the Society.

The meeting was then dissolved.

BUSINESS MEETING.

Saturday, July 2, 1887.

A duly notified stated meeting of the Society was holden at 11 o'clock, the President, Henry P. Walcott, in the Chair.

William C. Strong, Chairman of the Committee appointed at the last meeting to consider what amendments to the Constitution and By-Laws, in regard to the award of medals, the various funds given to the Society, or other points, might be necessary, made the following report:

The Committee appointed to consider the subject of the donations and legacies left to the Society, and the award of medals from such funds, together with any proposed alterations of the By-Laws, report as follows:

The aggregate amount of donations and legacies, up to the present date, is about $50,000.

With the exception of the Josiah Stickney fund of $12,000, the use of which until the year 1899 is conditioned to the purchase of books for the library, all the other gifts are absolute. In most cases they are conditioned to be invested as permanent funds, the income of which is to be devoted by the Society to prizes for the cultivation of fruits, flowers, and vegetables, in general. Special objects are designated in a few instances, as, for example, the French fund for Apples, the Hunnewell funds for Evergreen trees,

for Estates, and for Rhododendrons, and the Walker fund for Vegetables.

But the manner of awarding the income is in no case limited, and is entirely within the discretion of the Society. In most cases, however, the desire has been expressed by the donor that the gift should be invested as a permanent fund, the income of which should be expended in prizes. In one instance the request is made that the gift "shall be kept entirely distinct from all other funds of the Society for the specific purpose designated." When the present real estate and building of the Society was obtained, it was thought advisable that the funds of the Society should be applied towards its payments. No one can doubt the permanence or the safety of this investment. But by such disposal these donations become apparently merged with the general funds of the Society, and the annual income therefrom can only be approximately determined. As a result of this commingling, the custom has grown from year to year of awarding prizes from the general fund alone, without specifying in our Schedule of Prizes the various funds from which the prizes are drawn. In cases where the gifts have been small, and have not been limited, it cannot be expected that separate prizes can be mentioned, yet simple justice to the memory of the donors requires that we should modify our present method of awards.

It is not doubted that the donations may be legally invested with our other funds in the real estate of the Society. Yet it is evident that the intent of the donors would be more perfectly answered if the amount of their gifts were separately invested, and the annual income, which could then be more definitely determined, should be distinctly appropriated in prizes and medals.

Your Committee, therefore, advise the Society to recommend to the Finance Committee the separate investment of such moneys as have been given to the Society as permanent funds; such separate investment to be made whenever the Finance Committee shall deem that it can be done advantageously.

Your Committee also recommend that the following words be added to the vote passed April 2d, on motion of Mr. Woodford: "and the names of the donors of the funds from which the prizes are derived be connected with such prizes"— so that the vote as a whole shall read as follows:

Voted, That the Committee for Establishing Prizes be instructed

to apportion these prizes according to the terms of the bequests, and that the prizes be offered under their proper headings in the next and succeeding Schedules of Prizes of this Society, and that the names of the donors of the funds from which these prizes are derived be connected with such prizes.

In regard to medals and plates, your Committee find that there are no conditions or restrictions in any of the gifts to the Society, and therefore that their award is entirely at the option of the Society. The cost of such medals must of course be taken from the annual appropriations. To determine the amount to be deducted from the appropriations for such awards, your Committee recommend the establishment of the following values, respectively:

For the Bronze Medals,	a value of	$3.00
For the Society's Silver Medal,	"	5.00
For the Appleton Gold Medal,	"	50.00
For the Society's Gold Medal,	"	75.00

It has been found that many candidates who have been proposed for membership have neglected to qualify themselves for a considerable time after their election. To remedy this evil your Committee recommend the addition of the following words to Section XXIV of the By-Laws:

"The candidate for membership shall qualify himself for membership within six months from the date when notice is given of his election."

W. C. Strong,
W. H. Spooner,
E. W. Wood,
Solomon Lincoln,
John B. Moore.
} *Committee.*

The report was accepted, and Mr. Strong moved that the question be taken separately on the votes recommended therein. This motion was carried, and the question was put as follows:

First, on the recommendation to the Finance Committee concerning the investment of funds.

Second, on the amendment to the vote passed at the meeting on the 2d of April, concerning the offering of prizes from the funds donated to the Society.

Third, on the recommendation to establish the values of medals.

These recommendations were all unanimously adopted.

The amendment to the Constitution and By-Laws recommended by the Committee was, after two readings, approved by a majority vote, and laid over for consideration at the quarterly meeting in October.

The President, as Chairman of the Executive Committee, reported in regard to limiting the number of annual members of the Society, that subject having been referred to the Committee at the meeting on the 1st of January, that no action was desirable.

The Secretary laid before the Society a letter from Charles Gibb, acknowledging and accepting with thanks the Corresponding Membership to which he was elected.

J. Woodward Manning, of Reading,

having been recommended by the Executive Committee, was, on ballot, duly elected a member of the Society.

Adjourned to Saturday, August 6.

BUSINESS MEETING.

Saturday, August 6, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, Henry P. Walcott, in the chair.

Agreeably to the Constitution and By-Laws, the President appointed the following Committee to nominate suitable candidates for the various offices of the Society for the year 1888:

William C. Strong, Chairman; William H. Spooner, John C. Hovey, Francis H. Appleton, Patrick Norton, George Hill, Samuel Hartwell.

Charles E. Maxwell, of Boston,

having been recommended by the Executive Committee as a member of the Society, was, on ballot, duly elected.

Adjourned to Saturday, September 3.

BUSINESS MEETING.

SATURDAY, September 3, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

President Walcott said that before proceeding to other business, he wished to make the official announcement of what was doubtless known to all those present — the decease, since the last meeting of the Society, of two of its Ex-Presidents, John B. Moore and Charles M. Hovey.

Ex-President Moore died at his residence in Concord, on Sunday, the 21st of August. The speaker desired to say that he looked back to a pleasant intercourse with him. What most impressed him was the manliness of the man; his sturdy frame was an index to what was in him. He was not unduly elated with success; and the reverses which come to all were met by him with manly courage. In all his horticultural operations he illustrated the benefit of thorough cultivation. He was prominent not only in this Society, but as a member for many years of the State Board of Agriculture. He was for a long time a Deputy Sheriff of Middlesex County, and also a member of the Board of Prison Commissioners; and the speaker had abundant opportunity, from his own official position, to know that the duties of the last-mentioned office were discharged by him with signal ability and success. He felt that honors conferred upon him involved obligations.

Mr. Hovey died at his residence in Cambridge on Thursday, September 1. Of him it is difficult to speak otherwise than in connection with this Society, especially in this building, erected during his presidency, and largely due to his energy and perseverance. He was a man of very distinct convictions and very energetic ways of stating them. Perhaps at the time of his death there was no other name of so much consequence connected with American horticulture. The Magazine of Horticulture, which he commenced when a young man and published for thirty-four years, is a record and a monument such as no other horticulturist on this continent has left behind him.

O. B. Hadwen moved that a committee of five be appointed by the chair to prepare resolutions in memory of Ex-President Moore.

The motion was unanimously adopted by a rising vote, and the President appointed as that Committee, Ex-President James F. C. Hyde, O. B. Hadwen, C. H. B. Breck, John C. Hovey, and E. W. Wood.

William C. Strong said that there seemed to be a strange fatality among the officers of this Society; within three years a President and four Ex-Presidents had died. Only a fortnight ago he called on Ex-President Hovey, and was glad to find him better than he had expected to. Mr. Hovey then spoke most kindly of the Society and of the members. Mr. Strong closed by moving that a Committee of five be appointed by the Chair to prepare a memorial of Ex-President Hovey.

This motion also was unanimously adopted by a rising vote, and Ex-President William C. Strong, William H. Spooner, Charles L. Flint, Col. Henry Wilson, and Robert Manning, were appointed as the Committee.

Col. Henry W. Wilson moved that the officers of the Society, with ten other members to be appointed by the Chair, be a Committee to represent the Society at the funeral of Ex-President Hovey the next day. This motion was unanimously carried, and the chair appointed the Ex-Presidents,

James F. C. Hyde, William C. Strong,
Francis Parkman,

and the following members:

H. H. Hunnewell, Henry Wilson,
Charles L. Flint, O. B. Hadwen,
E. W. Wood, Patrick Norton,
Charles N. Brackett.

Mr. Strong, as Chairman of the Committee to nominate candidates for officers and standing committees for the next year, reported a list, which was accepted. It was voted that the Committee be continued and requested to nominate candidates in place of any who might decline before the election.

Col. Wilson, as Chairman of the Committee appointed to procure portraits of Hon. Francis B. Hayes and John B. Moore, to continue the series of portraits of the Presidents of the Society, made a concluding statement that they had attended to that duty. There was some delay in obtaining the portrait of President Hayes,

owing to the fact that the Committee thought that a bust might be obtained, but in this they were disappointed, and also owing to the fact that the first portrait painted was not satisfactory. A second one had been procured, without expense to the Society, which was suspended on the wall in view of those present.

The report was accepted and the Committee was discharged.

The Treasurer reported that he had received from the executors of the will of Ex-President Marshall P. Wilder, the sum of $1000, and also the Large Gold Medal awarded to him by the United States Agricultural Society, January 14, 1860, and by him bequeathed to this Society. The medal was presented at the meeting, and it was voted that the acceptance of these bequests and the conditions thereof be entered on the records of the Society.

The clause of Mr. Wilder's will relating to these bequests is as follows:

"Tenth. I give to the Massachusetts Horticultural Society the sum of one thousand dollars, to constitute a fund, the income of which shall be annually offered in special prizes, as follows: one-half of the income shall be offered annually in prizes for grapes of American origin; the other half of the income in prizes for the pear. These prizes shall be known as the 'Marshall P. Wilder prizes.' I also give to said Society the large Gold Medal of Honor presented to me by the United States Agricultural Society."

[The Gold Medal bequeathed by Mr. Wilder was deposited in the safe of H. H. Hunnewell, Chairman of the Finance Committee, as per his receipt on file with the Treasurer, dated October 1, 1887,—the Society's safe in the Boston Safe Deposit and Trust Company's vaults being too small to receive the case.]

THOMAS DOLIBER, of Roxbury, and
WARREN S. FROST, of Belmont,

having been recommended by the Executive Committee, were, on ballot, duly elected members of the Society.

The meeting was then dissolved.

BUSINESS MEETING.

SATURDAY, October 1, 1887.

A stated meeting of the Society, being the Annual Meeting for the choice of officers and standing committees, was holden at 11 o'clock, Vice-President C. H. B. BRECK in the chair.

The Recording Secretary being absent, owing to illness, the Chair appointed Edward Frost Recording Secretary *pro tempore*, who stated that the requirements of the Constitution and By-Laws in regard to notice of the meeting had been complied with.

In behalf of the Committee appointed to prepare a memorial of the late Charles M. Hovey, William C. Strong, Chairman, reported as follows:

The Committee appointed to prepare an expression from the Society in memory of the late Charles M. Hovey, submit the following:

The Massachusetts Horticultural Society desires to place on record its appreciation of the eminent ability and life-long service of the late Charles M. Hovey in the cause of horticulture and the interests of this Society. From very boyhood Mr. Hovey is said to have displayed a love of this art. At the early age of twenty-two, in the year 1832, he established his nurseries in Cambridge in connection with his brother, retaining this as his principal pursuit with unflagging interest until the day of his death.

During this long period of fifty-five years, what a vast amount of service did he render! What revolutions in the art did he witness! To him the high honor must be accorded of having contributed as much as any other man towards advancing the interests of horticulture to the present stage of progress. A man of ceaseless activity, untiring energy, keen observation, retentive memory, boundless enthusiasm, he brought to his work qualities which ensured progress. The many products of his skill were as sure to appear as the ripe fruit is sure to follow the careful culture of the seed. In every branch of cultivation, native or exotic, fruits or flowers, trees or plants, he was equally interested; and the results of his labors are seen in seedlings or valuable introductions in all departments of plants.

Such activity would exhaust the strength of most men. But

not content with this, in the year 1835, when only twenty-four years old, Mr. Hovey began the publication of the "Magazine of Horticulture," the first successful periodical of its kind in this country. For thirty-four years he continued its editor, giving a vast amount of original matter, together with full reports of the exhibitions and transactions of this Society. This work will remain as a lasting monument to his industry and ability, which alone would reflect high honor. In 1848 he began the publication of the "Fruits of America," illustrating in several volumes the fruits and the trees of this country as sketched by himself from nature.

Notwithstanding the incessant tax upon his time from these various departments of labor, he yet found ways to make himself familiar with the current literature of the old world relating to his various pursuits. His well read library was probably as complete as any other private library in the land upon these subjects. Considering his long life devoted exclusively to this pursuit, it may be doubted whether any other man in this country has done so much to stimulate a love of horticulture in all its branches.

Mr. Hovey joined this Society in September, 1833, four years after its organization.

He served as Librarian three years, from 1834 to 1836.

He served on the Library Committee from 1834 to 1859, being Chairman from 1843 to 1859.

He was on the Committee on Flowers and Shrubs from 1835 to 1842, and for the last two of these years was Chairman.

He was elected on the Executive Committee for 1842, 1843, and 1862, and also was *ex-officio* on this Committee from 1863 to 1885.

He was elected on the Committee to Establish Prizes for the years 1847, 1848, and 1849.

On the Committee on Synonyms of Fruit from 1847 to 1849, and also from 1857 to 1866.

On the Fruit Committee from 1850 to 1859.

On the Committee on Publication from 1853 to 1859.

He was elected Vice-President for 1858 and 1859.

He was elected President for the year 1863, and re-elected, holding that office for four successive years.

It was during his term of office and owing largely to his persistent advocacy that the site for our present Hall was secured and the building erected.

Such were the offices which he held and the employments which indicate a life of ceaseless and untiring activity. For long years and in many ways did he stimulate others while he lived to a like enthusiasm in the cultivation of Nature. May the memory of his zeal and ability be an inspiration to those who shall follow him.

The Secretary is hereby directed to forward a copy of this record to the family of the deceased, with the expression of the sincere sympathy of the Society in their sorrow.

William C. Strong,
William H. Spooner,
Charles L. Flint,
Henry W. Wilson,
Robert Manning.
} *Committee.*

After further appropriate remarks offered by Mr. Strong, in moving the adoption of the memorial, it was unanimously adopted and ordered to be entered on the records of the Society.

The Committee to prepare a memorial of the late John B. Moore, asked and were granted further time in which to report.

The Chair announced that the regular business of the meeting, being the election of officers and standing committees for the ensuing year, would now be proceeded with, and, agreeably to the Constitution and By-Laws, appointed William H. Spooner, Marshall B. Faxon, and Edward Frost, a Committee to receive, assort, and count the votes given and report the number.

The polls were opened at thirty minutes past eleven o'clock, and the Chair announced that they would remain open one hour, also that a check list would be used containing the names of those entitled to vote.

The Recording Secretary *pro-tem* laid before the Society a letter from the Royal Union for the Cultivation of Flower Roots, Haarlem, Netherlands, in regard to medals to be offered as prizes for flowering-bulbs at the Spring Exhibition of this Society in 1888. On motion of Mr. Strong it was voted to accept the proposals contained in the letter, and that notice of acceptance should be communicated to the Royal Union. It was also voted that the Committee on Establishing Prizes, *elect*, be requested to prepare a list of prizes for bulbs at the exhibitions in 1888, and report the same at the next meeting.

The amendment to the Constitution and By-Laws proposed at

the Stated Meeting on the 2d of July, and then ordered to be entered on the records, came up for final action, and on motion of Mr. Strong was unanimously adopted, as follows:

To be added to Section XXIV:

"The candidate for membership shall qualify himself for membership within six months from the date when notice is given of his election."

Mrs. H. L. T. Wolcott, followed by M. B. Faxon, read remarks and other matter in the nature of a report of the Committee on Window Gardening appointed April 2, 1887, and a plea for the continuance of its work. Mr. Faxon concluded by offering the following amendments to the Constitution and By-Laws:

That Section XXI of the Constitution and By-Laws be amended so as to include a Committee on Window Gardening, and so that the first clause of said section, as amended, shall read as follows:

"These Committees shall be the Committee on Fruits, the Committee on Plants and Flowers, the Committee on Vegetables, the Committee on Gardens, and the Committee on Window Gardening."

And that Section XX of the Constitution and By-Laws be amended by adding to the Committee for Establishing Prizes the Chairman of the Committee on Window Gardening, and reducing the number of additional members, not Chairmen of Committees, from three to two, so that the first portion of said section, as amended, shall read as follows:

"This Committee shall consist of the Chairmen of the Committees on Fruits, Plants and Flowers, Vegetables, Gardens, and Window Gardening, and two other members, who shall be chosen as provided in Section III."

The foregoing amendments having been read a second time by the presiding officer, and being seconded by Benjamin G. Smith, were unanimously passed to be entered on the records for consideration at the Stated Meeting in January next.

THADDEUS WILLIAM HARRIS, A. M., of Cambridge, and
WILLIAM H. HILLS, of Plaistow, N. H.,

having been recommended by the Executive Committee as members of the Society, were, on ballot, duly elected.

The polls were closed at thirty minutes past twelve o'clock, and the Committee to receive, assort, and count the votes, after attending to that duty, reported

The whole number of ballots to be 41.
Necessary for a choice 21.

The report of the Committee was accepted, and the persons reported as having the number of ballots necessary for a choice were, agreeably to the Constitution and By-Laws, declared by the presiding officer to have a majority of votes, and to be elected Officers and Standing Committees of the Society for the year 1888.

Adjourned to Saturday, November 5.

BUSINESS MEETING.

SATURDAY, November 5, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President Spooner in the chair.

Ex-President James F. C. Hyde, Chairman of the Committee to prepare a memorial of Ex-President John B. Moore, reported the following:

WHEREAS, in the providence of God, our late Ex-President, John B. Moore, has been called from his labors here on earth, therefore

Resolved, That in the removal of our late associate who has faithfully filled many positions in this Society, including its highest office, we have suffered a great loss.

Resolved, That not alone is the loss felt by the members of this Society, but by the whole community, among whom he was well known and highly respected for his active and useful life.

Resolved, That he will be long and deservedly remembered for the great benefit he has conferred upon the public by his successful efforts in the promotion of Agriculture and Horticulture, as well as by his useful labors in many other important matters.

Resolved, That his example as an intelligent, enthusiastic, and indefatigable worker in the great field of nature is worthy of imitation by all who are striving for success.

Resolved, That we tender to the bereaved family of our late associate, our warmest sympathy in this time of grief, at the loss of one so dear to them, and assure them that we shall long remem-

ber his many excellent qualities and the pleasant relations that have existed between us.

Resolved, That these resolutions be entered upon the records of the Society, and a copy be sent to the family of the deceased.

James F. C. Hyde,
O. B. Hadwen,
C. H. B. Breck,
John C. Hovey,
E. W. Wood. } *Committee.*

Mr. Hyde added that he had long known Mr. Moore and had been associated with him six years on the State Board of Agriculture. As a horticulturist he was eminently successful. He was a very useful man in the community, and in his death the public, as well as the Society, suffers a great loss, but he had reached an age when he could not be expected to continue long. His death, with that of Mr. Hovey, which followed soon after, leaves only three surviving Ex-Presidents of the Society.

O. B. Hadwen seconded the adoption of the resolutions, and said that he had known Mr. Moore for many years, and had been for twelve years a member of the State Board of Agriculture with him, and had known of his valuable work. Whatever he made a speciality of, he stood at the head of all cultivators of that flower or fruit, and in our exhibitions no one could beat him. His shows were of great benefit to that department of the Society's work; all have profited by them as well as by visits to his grounds, and in his death we have lost one of our most valuable men.

William C. Strong said that Mr. Moore hardly needed the tributes which had been paid him, for he was known by his fruits, yet he could not but express his sympathy with what had been said. One of his most marked characteristics was that he did all things thoroughly. He was a genial man, and the speaker recalled many pleasant interviews and social chats with him. We shall long cherish his memory, and especially the example of his cultivation.

The resolutions were unanimously passed.

The Chairman of the meeting reported from the Executive Committee a recommendation that the Society appropriate $6,000 for prizes and and gratuities for the year 1888, and that the attention of the various committees be called to the careful consideration of the possibility of making some reduction in the Schedule of

Prizes. Agreeably to the Constitution and By-Laws this recommendation was laid over until the stated meeting in January.

On motion of Robert Manning it was voted that agreeably to the rules of the State Board of Agriculture, three prizes of $10, $8, and $6, be offered for the best reports of awarding committees.

LEANDER BEAL, of Boston,

having been recommended by the Executive Committee as a member of the Society, was, upon ballot, duly elected.

Adjourned to Saturday, December 3.

BUSINESS MEETING.

SATURDAY, December 3, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

The Annual Report of the Committee on Plants and Flowers was read by Joseph H. Woodford, Chairman, accepted, and referred to the Committee on Publication.

The Annual Report of the Committee on Fruits was read by E. W. Wood, Chairman, accepted, and referred to the Committee on Publication.

The Annual Report of the Committee on Vegetables was read by Charles N. Brackett, Chairman, accepted, and referred to the Committee on Publication.

The Report of the Special Committee on Window Gardening was read by M. B. Faxon, Secretary, accepted and referred to the Committee on Publication.

The President, in behalf of the Executive Committee, submitted the Schedule of Prizes for the year 1888, as prepared by the Committee for Establishing Prizes; which was referred back for a conference between the two Committees in regard to certain points.

On motion of William H. Spooner, it was voted that in compliance with the laws of the Commonwealth a prize of $10 be offered for the best plantation of trees for ship timber, and that this offer be printed in the Schedule of Prizes for 1888.

The Secretary read a letter from John H. Moore, acknowledging the resolutions passed by the Society in memory of his father, the late John B. Moore, and in behalf of himself and the family thanking the Society therefor.

The Secretary also read a letter from the Secretary of the State Board of Agriculture, stating that the term of office of the delegate from the Society to the Board of Agriculture would expire at the close of the present year. On motion of John G. Barker the present delegate, E. W. Wood, was re-elected.

DANIEL G. WALTON, of Wakefield,

having been recommended by the Executive Committee, was, on ballot, duly elected a member of the Society.

Adjourned to Saturday, December 10.

BUSINESS MEETING.

SATURDAY, December 10, 1887.

An adjourned meeting of the Society was holden at 11 o'clock, the President, HENRY P. WALCOTT, in the chair.

The Annual Report of the Library Committee was read by William E. Endicott, Chairman, accepted, and referred to the Committee on Publication.

Robert Manning read his Annual Report as Secretary and Librarian, which was accepted and referred to the Committee on Publication.

The President, as Chairman of the Executive Committee, presented the Schedule of Prizes for the year 1888, with the approval of that Committee, certain changes having been made in it in conference with the Committee for Establishing Prizes. The Schedule was adopted and ordered to be printed.

The meeting was then dissolved.

REPORT

OF THE

COMMITTEE ON PLANTS AND FLOWERS,

FOR THE YEAR 1887.

By JOSEPH H. WOODFORD, Chairman.

In submitting the Report of our doings for the past year, it may not be too much to say that our Society is conceded to be the most active of all the similar institutions in the country in promoting a love for the beautiful among the masses of the people. For over fifty years it has been continually doing this great work of beneficence; and as the years roll away we become more and more assured of the wide-spread benefits conferred on this community by our liberality. The horticultural education, which is yearly disseminated by this Society and absorbed by the public, is a power for good, appreciated only by those who come in actual contact as participants, with the great work we are doing. The love of flower culture is probably the most refining influence which can be developed in any community, and as our institution pre-eminently fosters the love of flowers and gardening, we may be considered as amongst the great moral educators of the people.

We see an increased love of flowers manifested by the attendance at our weekly exhibitions, and by the quantity of flowers exposed for sale on the street or in the flower stores; both greater than ever before. Reaching as we do by our influence all classes of the people, we are doing all in our power to extend and develop among them a love of the useful and beautiful in nature, so that these may be availed of to the fullest extent of their beneficence.

The exhibitions during the year have been well attended and generally successful. To make a proper report of them it will be

well to review them in order, for this will afford an account more in accordance with the actual experiences of your Committee than if we condense our report into a general review of the whole year.

SPRING EXHIBITION.

March 23, 24, and 25.

This great exhibition was of unusual excellence. Special pains had been taken in the arrangement of the Halls, to make the show both natural and attractive. The Lower Hall was made to represent a garden in the spring time of the year, which was charmingly arranged by W. A. Manda with plants from the Botanic Garden of Harvard College. This was a new feature in our exhibitions, and was a grand innovation; it showed an immense variety of hardy perennial and spring flowering plants as growing quite naturally among the rocks, moss, and ferns of a wild garden. The effect produced was very pleasing and elicited favorable comments from the numerous visitors in attendance.

The Upper Hall was completely filled with plants and flowers gathered from the four quarters of the globe; but when we attempt to point out the best of the exhibits, we are confronted with the fact that all were good. Perhaps the most striking floral effect produced was the grand exhibition of flowering bulbs brought out by the liberal premiums of gold, gilt, and silver medals offered by the Royal Union of Holland for the promotion of the culture of Holland bulbs, and also by the liberal prizes offered by our own Society. The arrangement was good and the display was most effective. The Dutch Gold Medal was awarded to Nathaniel T. Kidder for fifty Hyacinths, and the Silver Gilt and Silver Medals were awarded to Charles H. Hovey for two collections, each of fifty Hyacinths. Charles H. Hovey was awarded the Silver Gilt Medal for twenty pots of Polyanthus Narcissus, and Charles M. Hovey was awarded the Silver Medal for twenty pots of Polyanthus Narcissus. The third prize was not awarded.

Tulips were not quite up to the standard of last year, therefore the first prize was not awarded. Charles H. Hovey took the Silver Medal for twenty-five pots, and Charles M. Hovey the Bronze Medal for twenty-five pots.

The show of Orchids, in quantity, quality, and extensive variety,

was undoubtedly the finest ever seen in this city. The arrangement made of them was very natural, as they were mostly suspended from the branches of trees hung with Spanish moss, which in many cases gave them the appearance of growing in their native forests.

The Roses, Azaleas, and other plants were very beautiful, and the wonderful amount of fragrance emitted from so many lovely flowers, and sweet smelling plants, was at times almost overpowering. To show better than we can otherwise express it the appreciation which one lady had of this exhibition, we will here state that, during the afternoon of the last day the show was open, she bought tickets for a school of seventy young ladies. These contributed by their graceful presence an additional enchantment to the scene. Their delight was unbounded and their expressions of it were very enthusiastic.

The new roses, Papa Gontier and Puritan, were brought into prominent notice for the first time at this show, and to each was awarded the Society's Silver Medal for excellence.

RHODODENDRON SHOW.

June 4.

The exhibition of Rhododendrons, owing to the lateness of the season, was not up to the high standard attained last year; yet it was a highly commendable show, and the exhibitors were rewarded by a large attendance. The most extensive contributors were H. H. Hunnewell and Mrs. Francis B. Hayes.

On the 11th of June, the display of rhododendrons was even better than on prize day, and the show of other flowers in their season was quite extensive. The Arnold Arboretum, by the hand of Jackson Dawson, contributed a large collection of new shrubs, as follows:

Rosa spinosissima pencillata.
" " *rubra.*

Rosa pumila, an Alpine species growing not more than a foot high.

Rosa Arkansana.

Whipplea modesta, from Texas.

Vaccinium staurinum, from Western Massachusetts; very pretty.

Azalea calendulacca, from seed from the mountains of North Carolina, and as beautiful as the garden varieties.

Hudsonia tomentosa, from Plymouth.

Viburnum cassinoides, from Vermont.

Rhododendron ferrugineum, Alpine.

Ceanothus ovatus, from Vermont.

Jamesia Americana, from the Rocky mountains.

Lonicera perfoliata, received under this name but probably a variety of *L. Periclymenum*.

Cornus circinata, from the northern and western parts of this state; beautiful in flower and fruit, the latter being white.

A species of Amelanchier, having wreaths of white flowers when exhibited, and scarlet fruit in autumn.

ROSE EXHIBITION.

June 21 and 22.

The great Rose Show was thought by some to surpass that of last year, and was conceded by all to be a grand display of this most beautiful flower. The prizes were more widely distributed than formerly, which demonstrates the fact that more attention to cultivation is now generally given and more skilful methods are adopted by gardeners, enabling a larger number to grow the "Queen of the Garden" to a high degree of perfection. All classes of growers were represented. The botanist was given an opportunity to study about forty different species collected by the Arnold Arboretum from all over the world, — the amateur an occasion to remark upon his brother amateur's success in taking prizes, — and the gardener a chance to show his supremacy in the art of growing this imperious Queen. Both the halls were well filled with beautiful roses and other plants and flowers, and the exhibition as a whole was a most pleasing and successful one.

WEEKLY EXHIBITIONS.

The Weekly Flower Shows beginning July 2 and ending September 3 were very good; and as exhibiting the different flowers, each in its natural season, they were very instructive to a large number of visitors of different ages and classes.

Worthy of special mention were

Delphiniums,	grown	by	Edwin Fewkes & Son;
Sweet Peas,	"	"	J. F. C. Hyde;
Gladioli,	"	"	H. B. Watt;
"	"	"	J. W. Clark;
Herbaceous Plants,	"	"	William J. Martin;
" "	"	"	J. W. Manning;
and Pompon Dahlias,	"	"	George S. Tuttle.

The weekly displays of native plants collected by Mrs. P. D. Richards, formed a striking educational feature of our shows, not to be passed over without notice.

ANNUAL EXHIBITION.

September 13, 14, 15 and 16.

The Annual Exhibition was held this year in the Great Hall of the Mechanics' Charitable Association building, on Huntington Avenue, and in connection with the biennial session of the American Pomological Society. Ample space was allotted to the Flower Committee for the display of plants and flowers, and the artistic grouping of the specimens presented has never been surpassed in any of our shows. The plants were of the most rare and beautiful species, and profuse in quantity; and each was a well grown specimen of its kind. Each exhibitor was apportioned a suitable space of floor room on which to group his plants, and when all was completed the great hall presented the appearance of a grand tropical garden covering a space of about twenty thousand square feet in extent.

The large tanks of Water Lilies from John Simpkins, were a splendid feature of the exhibition, as they comprised specimens from all parts of the world, and of all sizes, ranging from our smallest *Nymphæa odorata*, to the magnificent lily of the River Amazon, the world-renowned *Victoria regia*.

The principal contributors of plants were H. H. Hunnewell, N. T. Kidder, George A. Nickerson, John L. Gardner, Mrs. Francis B. Hayes, W. A. Manda, Thomas Clark, and Charles H. Hovey. Taking it all together it was pre-eminently the best display of plants and flowers ever made in Boston.

A unique feature of the exhibition was the large collection of

cut specimens of ornamental fruit bearing shrubs from the Arnold Arboretum, by Jackson Dawson, gardener. For the information of those who may desire to decorate their gardens with these rich ornaments, rendering it gay when the flowers are mainly passed away, we include the list furnished by Mr. Dawson.

List of Shrubs in Fruit Exhibited by Jackson Dawson of the Arnold Arboretum.

Aralia hispida.
Alnus maritima.
" *viridis.*
Berberis Sinensis.
" " *variegata.*
" *Thunbergii.*
" *vulgaris.*
" " var. *hypoleuca.*
Celastrus scandens.
Cephalanthus occidentalis.
Colutea arborescens.
Cornus paniculata,
" *sericea.*
Cotoneaster acuminata.
Cratægus coccinea.
" *oxyacantha.*
" *tomentosa* var. *pyrifolia.*
Euonymus alatus.
" *Americana* var. *obovata.*
" *Europæus fructo purpurea.*
Ilex lævigata.
" *verticillata* (red fruit).
" " (white fruit).
Lonicera flava.
" *hirsuta.*
" *Tartarica.*
Lycium Chinense.
Magnolia Umbrella.
Panax sessiliflora.
Phellodendron Amurensis.
Prunus Americana.
" *maritima.*
Prunus serotina.
" *Virginiana.*
Ptelea trifoliata.
Pyrus Americana.
" *baccata.*
" " var. *aurantiaca.*
" " " *cerasiformis.*
" " " *chlorocarpum.*
" " " *Sieboldii.*
" *Japonica Mauleii.*
" " *nivalis.*
" " *umbilicata rosea.*
" *Malus flore pleno.*
" " *Toringo.*
" *prunifolia.*
" " var. *aurantiaca.*
" " " *macrocarpa.*
" " " *microcarpa.*
" *Ringo.*
" *spectabilis aurantiaca.*
Rhamnus frangula.
Rhus glabra.
" " *laciniata.*
Rosa Arkansana.
" *Californica.*
" *glauca.*
" *rugosa.*
Sambucus Canadensis.
" " var. *aurea.*
Symphoricarpus racemosus.
Taxus baccata var. *Canadensis.*
Viburnum opulus.
" *pubescens.*

CHRYSANTHEMUM SHOW.

November 9, 10 and 11.

The culmination of our exhibitions for the year occurred on the 9th, 10th, and 11th of November, when the Chrysanthemum Show was held, in our own Halls. The list of prizes was so munificent that it had stimulated all who knew how to grow these plants to their utmost endeavors to excel any former attempt; and when the exhibition was opened all the space in both halls was filled with a better grown class of plants than had ever before been shown by our Society. It is a pleasure to record the enthusiasm shown by growers of chrysanthemums, and it is also a pleasure to know that our Society, by its liberal offers in prizes, is bringing forward a larger number of competitors than ever before, and is thereby aiding to bring into prominence a class of plants the most floriferous of all, and blooming at a season of the year when no others do in any like profusion.

The practice of growing new kinds from seed is extending; and we are glad to record the fact that our President, Dr. Henry P. Walcott, Arthur H. Fewkes, George Seaverns, and others, showed some grand specimens of blooms from plants grown by them from seed planted this year.

It is also pleasant to record the fact that an entirely new group of flowers has reached us from Japan, having been sent to Mrs. Alpheus Hardy, by Neesima, a native of Japan, out of gratitude to Mrs. Hardy for favors shown him while in this country. These plants were exhibited by Edwin Fewkes & Son, and are well worthy to be grown by all loving these beautiful flowers.

One of this last mentioned collection has been named Mrs. Alpheus Hardy. It is a most beautiful, large, incurved Japanese variety, having feathery petals of wonderful delicacy and whiteness, and is the most sumptuous of the whole family thus far known. It was awarded the Society's Silver Medal for superior excellence.

The exhibition was well attended and was very much of a success.

The prizes for Herbaceous Plants have been closely competed for during the season by Nathaniel T. Kidder and J. W. Manning, Mr. Kidder gaining the Society's Silver Medal by only one point. Mr. Manning took the Bronze Medal as second prize.

The first prizes for Annuals were taken the most times by W. A. Manda, and he was in consequence entitled to the Society's Silver Medal, while C. M. Hovey carried off the Bronze Medal.

Special Prize No. 682, offered by M. B. Faxon, was awarded to J. F. C. Hyde, for a splendid collection of Sweet Peas.

Special Prize No. 683, also offered by Mr. Faxon, for Fifty Pansies was awarded to L. W. Goodell.

From the H. H. Hunnewell premiums offered for Rhododendrons, Azaleas, and Evergreens, the sum of $46 was awarded.

The amount appropriated by the Society for the use of your Committee was $3,454. Of this amount, $2,712 has been awarded in prizes, in accordance with the Schedule of Prizes, and $730 in gratuities.

The only sad events we have to chronicle are included in the departure from our midst of such noble co-workers and exhibitors as Wilder, Moore, and Hovey. They were the most active of our members, not only in counsel, but in all the good works of Horticulture; and this place that once knew them so well, shall know them no more, except in the good works which follow them. It behooves us to do with our might whatsoever our hands find to do, to advance our Society in the direction of those useful purposes which they desired it to pursue; and their example of fidelity to the art of Horticulture should stimulate us to attempt even greater achievements than those which they accomplished during their long lives of usefulness.

All of which is respectfully submitted.

Jos. H. Woodford,
Warren H. Manning,
F. L. Harris,
David Allan,
W. A. Manda,
Arthur H. Fewkes,
M. H. Norton.
} *Committee on Plants and Flowers.*

PRIZES AND GRATUITIES AWARDED FOR PLANTS AND FLOWERS.

February 5.

Freesia refracta.—Six pots in bloom, John L. Gardner,	$4 00
Second, Mrs. A. D. Wood,	3 00
Roman Hyacinths.—Six six-inch pots, Edwin Fewkes & Son,	4 00
Second, John L. Gardner,	3 00

February 26.

Gratuity:—

Mrs. Francis B. Hayes, Cut Flowers,	3 00

March 5.

Gratuity:—

Mrs. Francis B. Hayes, Roses,	3 00

March 12.

Gratuity:—

Mrs. Francis B. Hayes, Roses and Camellias,	3 00

SPRING EXHIBITION.

March 23, 24, and 25.

Indian Azaleas.—Six named varieties, in pots, William J. Martin,	$15 00
Second, Arthur W. Blake,	12 00
Two named varieties, Arthur W. Blake,	6 00
Specimen Plant, named, William J. Martin, Adèle Van Houtte,	5 00
Second, Arthur W. Blake,	4 00
Four named varieties, in not exceeding ten-inch pots, Alfred W. Spencer,	10 00
Second, Arthur W. Blake,	8 00
Single plant, of any named variety, in not exceeding an eight-inch pot, Mrs. Francis B. Hayes,	3 00
Second, Arthur W. Blake,	2 00
Hybrid Perpetual Roses.—Three plants, distinct named varieties, Mrs. Francis B. Hayes,	8 00
Second, Thomas Clark,	6 00
Single named plant, Thomas H. Meade, Baroness Rothschild,	4 00
Second, Mrs. Francis B. Hayes,	3 00

Twelve cut blooms, of not less than six distinct varieties, excluding Gen. Jacqueminot, Norton Brothers,	$8 00
Second, Edwin Sheppard,	6 00
Third, Mrs. Francis B. Hayes,	4 00
Six cut blooms, distinct named varieties, Edwin Sheppard,	4 00
Tender Roses in Vases.—Twelve blooms of Bon Silène, Norton Brothers,	3 00
Second, Samuel Neil,	2 00
Twelve blooms of Catherine Mermet, Norton Brothers,	5 00
Twelve blooms of Cornelia Cook, " "	5 00
Twelve blooms of Niphetos, Mrs. E. M. Gill,	5 00
Second, Norton Brothers,	4 00
Twelve blooms of Safrano, Samuel Neil,	3 00
Second, Mrs. Francis B. Hayes,	2 00
Twelve blooms of The Bride, Norton Brothers,	5 00
Orchids.—Six plants in bloom, David Allan,	15 00
Second, Frederick L. Ames,	12 00
Third, E. W. Gilmore,	10 00
Fourth, David Allan,	8 00
Three plants in bloom, Samuel R. Payson,	8 00
Second, Frederick L. Ames,	6 00
Third, William J. Martin,	5 00
Fourth, E. W. Gilmore,	4 00
Single plant in bloom, Samuel R. Payson, *Cymbidium eburneum*,	5 00
Second, David Allan,	4 00
Third, Alfred W. Spencer,	3 00
Stove or Greenhouse Plant.—Specimen in bloom, other than Azalea or Orchid, named, Samuel R. Payson,	6 00
Second, Mrs. Francis B. Hayes,	5 00
Hardy Flowering Shrubs and Herbaceous Plants, Forced.—Six in pots, six distinct varieties, John L. Gardner,	8 00
Cyclamens.—Ten plants in bloom, Edwin Sheppard,	6 00
Three plants in bloom, Thomas Clark,	3 00
Second, Edwin Sheppard,	2 00
Hardy Primroses, or Polyanthuses, the second prize to William J. Martin,	3 00
Cinerarias.—Six varieties, in bloom, in not over nine-inch pots, E. W. Gilmore,	8 00
Second, William J. Martin,	6 00
Third, Edwin Sheppard,	4 00
Single plant in bloom, William J. Martin,	3 00
Second, Charles M. Hovey,	2 00
Violets.—Six pots, in bloom, William J. Martin, Marie Louise,	4 00
Second, William J. Martin, Swanley White,	3 00
Third, William J. Martin, Neapolitan,	2 00
Pansies.—Six distinct varieties, in pots, in bloom, W. C. Ward,	4 00
Fifty cut blooms in the Society's flat fruit dishes, William J. Martin,	3 00

Second, W. C. Ward, ... $2 00
Third, Denys Zirngiebel, ... 1 00

CAMELLIAS.—Display of named varieties, cut flowers with foliage, not less than twelve blooms, of not less than six varieties, Charles M. Hovey, ... 5 00
Second, Mrs. Francis B. Hayes, ... 4 00

Six cut blooms, of not less than four varieties, with foliage, Mrs. Francis B. Hayes, ... 3 00
Second, Charles M. Hovey, ... 2 00

CENTRE PIECE for Dinner Table.—Best designed and best kept during the exhibition, Mrs. E. M. Gill, ... 10 00
Second, Mrs. A. D. Wood, ... 9 00
Third, Miss Sarah W. Story, ... 8 00

Special Prizes for Bulbs, offered by the General Union of Holland for the Promotion of the Cultivation of Bulbs.

HYACINTHS.—Fifty named bulbs in fifty pots, in bloom, not more than two of one sort:
William J. Martin, the First Prize, a Gold Medal.
Charles H. Hovey, the Second Prize, a Silver Gilt Medal.
Charles H. Hovey, the Third Prize, a Silver Medal.

TULIPS.—Twenty-five pots, single early varieties, in twenty-five distinct sorts, three bulbs of the same sort in a pot:
Charles H. Hovey, the Second Prize, a Silver Medal.
Charles M. Hovey, the Third Prize, a Bronze Medal.

POLYANTHUS NARCISSUS.—Twenty pots, three bulbs of the same sort in each pot, not more than two pots of one sort:
Charles H. Hovey, the First Prize, a Silver Gilt Medal.
Charles H. Hovey, the Second Prize, a Silver Medal.

Society's Prizes.

HYACINTHS.—Twelve distinct named varieties, in pots, one in each pot, in bloom, Charles H. Hovey, ... $10 00
Second, Charles M. Hovey, ... 8 00
Third, William J. Martin, ... 6 00

Six distinct named varieties, in pots, one in each pot, in bloom, Charles H. Hovey, ... 6 00
Second, Charles M. Hovey, ... 5 00
Third, William J. Martin, ... 4 00

Three distinct named varieties, in pots, one in each pot, in bloom, Charles H. Hovey, ... 4 00
Second, Charles M. Hovey, ... 3 00
Third, William J. Martin, ... 2 00

Single named bulb in pot, in bloom, Charles M. Hovey, Carlisle, 2 00
Second, Charles H. Hovey, La Neige, ... 1 00

Three pans, ten bulbs of one variety in each pan, William J. Martin,	$10 00
Second, Charles M. Hovey,	8 00
Third, Charles M. Hovey,	6 00
TULIPS.—Six six-inch pots, five bulbs in each, in bloom, William J. Martin,	5 00
Second, Charles M. Hovey,	4 00
Three six-inch pots, five bulbs in each, in bloom, Wm. J. Martin,	4 00
Second, Charles M. Hovey,	3 00
Three pans, ten bulbs of one variety in each pan, Wm. J. Martin,	5 00
POLYANTHUS NARCISSUS.—Four seven-inch pots, three bulbs in each, in bloom, Charles H. Hovey,	6 00
Second, Charles H. Hovey,	4 00
Third, Charles H. Hovey,	3 00
HARDY NARCISSUS AND DAFFODILS.—Best display, Charles M. Hovey,	8 00
Second, Charles H. Hovey,	6 00
GENERAL DISPLAY OF SPRING BULBS.—Charles M. Hovey,	20 00
Second, Charles H. Hovey,	15 00
LILY OF THE VALLEY.—Six six-inch pots, in bloom, Thomas Clark,	5 00
ANEMONES.—Three pans, Thomas Clark,	4 00

Gratuities:—

W. A. Manda, Display of Herbaceous Plants,	25 00
David Allan, " " Orchids and Cut Flowers,	15 00
Frederick L. Ames, " " " " "	10 00
W. A. Manda, " " Orchids, etc.,	10 00
E. W. Gilmore, Display of Orchids,	3 00
Benjamin Grey, Orchids and Cut Flowers,	2 00
Mrs. Francis B. Hayes, Display of Plants and Flowers,	8 00
A. W. Blake, " " Azaleas,	5 00
Charles M. Hovey, Azalea Susette,	4 00
Mrs. F. B. Hayes, Hybrid Perpetual Roses in pots,	3 00
Norton Brothers, Cut Roses,	3 00
A. W. Spencer, Calceolarias,	3 00
Thomas Clark, Calceolarias,	2 00
Charles M. Hovey, Amaryllis and Lilies,	3 00
Mrs. E. M. Gill, Amaryllis,	2 00
Edwin Fewkes & Son, Hybrid Primroses,	2 00
F. Palmer, Seedling Carnation Primrose, cut blooms,	1 00
J. Walsh, " " " "	1 00
Mrs. P. D. Richards, Wild Plants,	1 00

APRIL 9.

Gratuity:—

Joseph H. Woodford, Forty Hyacinths,	3 00

APRIL 16.

Gratuities:—

Mrs. Francis B. Hayes, Azaleas, etc.,	$3 00
W. A. Manda, Orchids, Iris, Myosotis, etc.,	3 00

APRIL 30.

Gratuity:—

Mrs. Francis B. Hayes, six varieties of Himalayan Rhododendrons, and one hundred varieties of Azalea Indica,	5 00

MAY EXHIBITION.

MAY 7.

INDIAN AZALEAS.—Three plants in pots, named, William J. Martin,	$6 00
The third prize to Mrs. Francis B. Hayes,	4 00
Single specimen, William J. Martin,	4 00
Second, Charles M. Hovey,	3 00
CALCEOLARIAS.—Six varieties in pots, Thomas Clark,	6 00
Second, Thomas Clark,	5 00
Single plant, Thomas Clark,	2 00
Second, Thomas Clark,	1 00
GLOXINIAS.—Display of cut blooms, Thomas Clark,	3 00
Second, William J. Martin,	2 00
AURICULAS.—Ten, in pots, the third prize to Thomas Clark,	3 00
TULIPS.—Twenty-four blooms, distinct named varieties, Charles M. Hovey,	4 00
HARDY BULBS.—Best collection of blooms, Charles M. Hovey,	8 00
BASKET OF FLOWERS.—Mrs. E. M. Gill,	6 00
Second, Mrs. A. D. Wood,	5 00
Third, Miss Sarah W. Story,	4 00
PANSIES.—Fifty cut blooms in the Society's flat fruit dishes, W. C. Ward,	4 00
Second, Mrs. E. M. Gill,	3 00
HERBACEOUS PLANTS.—Largest and best arranged collection, named, William J. Martin,	2 00
Second, Miss Sarah W. Story,	1 00

Gratuities:—

Mrs. Francis B. Hayes, Cut Flowers,	4 00
E. Fewkes & Son, Narcissus,	1 00
J. H. Woodford, Hardy Bulbs,	1 00
Mrs. P. D. Richards, Native Plants,	2 00
Esther E. Barry, " "	2 00

MAY 14.

Gratuity:—

M. B. Faxon, Tulips and Narcissi,	2 00

May 21.

Gratuities:—

Mrs. Francis B. Hayes, two plants of Hydrangea Thomas Hogg, and Cut Flowers,	$5 00
J. W. Clark, Tulips,	1 00
Mrs. P. D. Richards, Wild Flowers,	2 00
E. H. Hitchings, " "	1 00

May 28.

Gratuities:—

E. H. Hitchings, Wild Flowers,	1 00
Frank C. Hyde, " " forty-five varieties,	1 00

RHODODENDRON SHOW.

June 4.

Hunnewell Premiums.

Rhododendrons.—Eighteen hardy varieties, named, Mrs. Francis B. Hayes,	$10 00
Hardy Azaleas.—Any and all classes; fifteen named varieties, one truss each, the second prize to T. C. Thurlow,	5 00
Six named varieties, one truss each, Charles M. Hovey,	4 00
Three " " " " Benjamin G. Smith,	2 00
Cluster of trusses, of one variety, Mrs. Francis B. Hayes,	2 00

Society's Prizes.

German Iris.—Six distinct varieties, one spike of each, Edwin Fewkes & Son,	3 00
Second, Mrs. Francis B. Hayes,	2 00
Clematis.—Named varieties, display of cut blooms, with foliage, Joseph H. Woodford,	4 00
Native Plants.—Display of named species and varieties, Mrs. P. D. Richards,	4 00
Second, Walter E. Coburn,	3 00
Cut Flowers.—Display filling one hundred bottles, Mrs. A. D. Wood,	4 00
Second, Mrs. E. M. Gill,	3 00
Herbaceous Plants.—Largest and best arranged collection, named, William J. Martin,	2 00
Second, J. W. Manning,	1 00

Gratuities:—

H. H. Hunnewell, Rhododendrons and Azaleas,	10 00
W. A. Manda, Herbaceous Plants, and Hardy Trees and Shrubs,	5 00

Mrs. Francis B. Hayes, Rhododendrons and Azaleas, etc.,	$5 00
" " " Clematis,	2 00
John B. Moore & Son, Tree Pæonies and Roses,	3 00
Charles M. Hovey, Azaleas and Rhododendrons,	3 00
W. A. Manda, *Gladiolus Colvillii alba*,	1 00
Edwin Fewkes & Son, English Iris,	1 00
Miss E. M. Harris, Cut Flowers,	1 00

JUNE 11.

Gratuities:—

H. H. Hunnewell, Rhododendrons,	5 00
Jackson Dawson, Rare Flowering Shrubs,	5 00
Mrs. Francis B. Hayes, Rhododendrons,	5 00
" " " Azaleas,	3 00
" " " German Iris,	1 00
Edwin Fewkes & Son, " "	1 00
J. W. Manning, " "	1 00
" " Herbaceous Plants,	1 00
Anthony McLaren, " "	1 00
Edwin Sheppard, Cut Flowers,	1 00
Frank C. Hyde, Wild Flowers,	1 00

JUNE 18.

Gratuities:—

Mrs. Francis B. Hayes, Cut Blooms of Roses, Rhododendrons, and other Flowering Shrubs,	5 00
Edwin Fewkes & Son, Cut Roses,	2 00
William H. Spooner, " "	1 00
J. W. Manning, English Iris, eighteen varieties,	1 00
" " Herbaceous Plants,	1 00
" " Pæonies,	1 00
O. B. Hadwen, "	1 00
Mrs. E. M. Gill, Cut Flowers,	1 00

ROSE EXHIBITION.

JUNE 21 AND 22.

Special Prizes.

HYBRID PERPETUAL ROSES.—Twenty-four roses, of different varieties, named, John B. Moore & Son,	$25 00
Second, Warren Heustis & Son,	15 00
Twelve roses, of different varieties, named, William H. Spooner,	15 00
Eighteen roses, of different varieties, named, William H. Spooner,	20 00
Six roses, of any two varieties, three of each, John L. Gardner,	10 00

Twelve roses, of any four varieties, three of each, Mrs. Francis B. Hayes,	$15 00
Eighteen roses, of any six varieties, three of each, J. B. Moore & Son,	20 00
Best and best kept Design, Table Decoration, or combination of Roses, in a basket or other receptacle, except a vase, Mrs. F. B. Hayes,	10 00
Second, Mrs. E. M. Gill,	8 00

Amateur's Prize.

Twenty-four named roses of different varieties, exhibited by an Amateur, Warren Heustis,	25 00
Second, John L. Gardner,	15 00

Six blooms of Alfred Colomb, John B. Moore & Son,	4 00
" " Baroness Rothschild, John L. Gardner,	4 00
" " John Hopper, John B. Moore & Son,	4 00
Second, Mrs. Francis B. Hayes,	3 00
" " Marquise de Castellane, Warren Heustis & Son,	4 00
" " Merveille de Lyon, William H. Spooner,	4 00
" " Mme. Gabriel Luizet, Mrs. Francis B. Hayes,	4 00
Second, John L. Gardner,	3 00
" " Mme. Victor Verdier, Warren Heustis & Son,	4 00
Second, John B. Moore & Son,	3 00
Twelve blooms of any other variety, J. B. Moore & Son,	6 00
Second, Warren Heustis & Son,	4 00

Regular Prizes.

Hardy Perpetual Roses.—Twenty-four distinct named varieties, three of each variety, John B. Moore & Son,	20 00
Second, Warren Heustis & Son,	15 00
Twelve distinct named varieties, three of each, W. H. Spooner,	10 00
Six distinct named varieties, one of each, the second prize to John B. Moore & Son,	4 00
Third, Benjamin G. Smith,	3 00
Three distinct named varieties, one of each, Mrs. Francis B. Hayes,	4 00
Second, John L. Gardner,	3 00
Third, William F. Flanagan,	2 00
Moss Roses.—Six distinct named varieties, three clusters of each, John B. Moore & Son,	6 00
Second, Edwin Fewkes & Son,	4 00
Third, Charles M. Hovey,	3 00
Three distinct named varieties, three clusters of each, John B. Moore & Son,	4 00
Second, Edwin Sheppard,	3 00

HYBRID TEA ROSES.—Display in boxes, John B. Moore & Son,	$6 00
Second, Mrs. Francis B. Hayes,	4 00
GENERAL DISPLAY of one hundred bottles of Hardy Roses, John B. Moore & Son,	10 00
Second, Mrs. Francis B. Hayes,	9 00
Third, William H. Spooner,	8 00
Fourth, Edwin Fewkes & Son,	7 00
Fifth, Charles M. Hovey,	6 00
STOVE AND GREENHOUSE FLOWERING PLANTS —Five distinct named varieties in bloom, no Orchid admissible, David Allan,	15 00
Specimen Plant in bloom, named, other than Orchid, David Allan,	5 00
Second, Mrs. Francis B. Hayes,	4 00
HEATHS.—Six plants, of distinct named varieties, John L. Gardner,	6 00
Three plants, of distinct named varieties, David Allan,	4 00
Second, David Allan,	3 00
ORCHIDS.—Twelve plants, named varieties, in bloom, David Allan,	20 00
Second, E. W. Gilmore,	15 00
Six plants, named, Benjamin Grey,	10 00
Second, David Allan,	8 00
Third, Benjamin Grey,	6 00
Single specimen, Mrs. Oliver Ames, Sr.,	6 00
Second, Charles M. Hovey,	5 00
HERBACEOUS PÆONIES.—Ten named varieties, O. B. Hadwen,	6 00
Second, Charles M. Hovey,	5 00
SWEET WILLIAMS.—Thirty trusses, not less than six distinct varieties, L. W. Goodell,	3 00
Second, Edwin Sheppard,	2 00
Third, Charles M. Hovey,	1 00
HERBACEOUS PLANTS.—Largest and best arranged Collection, named, William J. Martin,	2 00
Second, J. W. Manning,	1 00

Gratuities:—

Thomas H. Meade, Collection of Hybrid Perpetual Roses,	6 00
" " " Collection of Tea Roses,	2 00
Warren Heustis & Son, La France Roses,	2 00
Benjamin G. Smith, Cut Roses,	2 00
M. B. Faxon, " "	2 00
John B. Moore & Son, " "	2 00
" " " Vases of Roses,	2 00
David Allan, Ferns, Dracænas, etc.,	10 00
" " Orchid Plants and Cut Blooms, etc.,	10 00
W. A. Manda, Orchids, etc.,	10 00
E. W. Gilmore, Orchids, Crotons, etc.,	8 00
Jackson Dawson, Wild Roses from all countries, thirty-six species,	8 00
W. A. Manda, Cut Flowers,	6 00

Mrs. Francis B. Hayes, Cut Flowers,	$5 00
Edwin Sheppard, " "	5 00
Charles M. Hovey, Cut Fancy Pelargoniums, etc.,	5 00
H. H. Hunnewell, Foliage and Flowers,	5 00
W. A. Manda, Banana Plant,	3 00
Mrs. P. D. Richards, Native Plants,	3 00
Mrs. Francis B. Hayes, Hydrangea Thomas Hogg,	2 00
William J. Martin, Two Orchids,	2 00
Miellez Horticultural Co., Pansies,	2 00
Miss Ellen M. Harris, Pæonies,	1 00
B. D. Hill, "	1 00
O. B. Hadwen, Roses and Pæonies,	1 00

JUNE 28.

Gratuities:—

Mrs. Francis B. Hayes, Roses,	2 00
Marshall B. Faxon, "	2 00
William H. Spooner, "	2 00
Benjamin G. Smith, "	2 00
Warren Heustis & Son, "	2 00
Mrs. Francis B. Hayes, Orchid and Clematis,	2 00
B. D. Hill, Pæonies,	1 00

JULY 2.

DELPHINIUMS.—Six named varieties, Edwin Sheppard,	4 00
Second, Edwin Fewkes & Son,	3 00
Third, Anthony McLaren,	2 00
LILIUM CANDIDUM.—Twelve spikes, Benjamin G. Smith,	3 00
Second, William J. Martin,	2 00
CUT FLOWERS.—Display filling one hundred bottles, Mrs. A. D. Wood,	4 00
Second, Mrs. E. M. Gill,	3 00
HERBACEOUS PLANTS.—Largest and best arranged collection, named, William J. Martin,	2 00
Second, J. W. Manning.	1 00

Gratuities:—

Edwin Sheppard, Delphiniums,	1 00
Edwin Fewkes & Son, Salpiglossis and Delphiniums,	1 00
Benjamin G. Smith, Cut Flowers,	1 00
Miss Sarah W. Story, " "	1 00
Mrs. P. D. Richards, Native Plants,	1 00
Severance Burrage, " " ninety varieties,	1 00

July 9.

Japan Iris (varieties of *Iris Kæmpferi*).—Best collection, John L. Gardner,	$8 00
Second, Edwin Fewkes & Son,	6 00
Third, J. F. C. Hyde,	5 00
Six named varieties, Edwin Fewkes & Son,	4 00
Second, J. F. C. Hyde,	3 00
Vase of Flowers.—Best arranged, Mrs. E. M. Gill,	3 00
Second, Miss Sarah W. Story,	2 00
Herbaceous Plants.—Largest and best arranged collection, named, J. W. Manning,	2 00
Second, William J. Martin,	1 00

Gratuities:—

Edwin Sheppard, Japan Iris,	3 00
John L. Gardner, Five pots of Orchids,	5 00
Siebrecht & Wadley, New York, Cattleyas, five varieties,	2 00
M. B. Faxon, Hollyhocks,	1 00
Miss Sarah W. Story, Cut Flowers,	1 00
Severance Burrage, Native Plants,	1 00
F. C. Hyde, " "	1 00

July 16.

Hollyhocks.—Single, six spikes, distinct colors, the second prize to Charles M. Hovey,	2 00
Double, twelve blooms, of twelve distinct colors, Edwin Sheppard,	4 00
Second, Edwin Fewkes & Son,	3 00
Six blooms, of six distinct colors, J. F. C. Hyde,	2 00
Second, Mrs. E. M. Gill,	1 00
Cut Flowers.—Display filling one hundred bottles, Mrs. E. M. Gill,	4 00
Second, Mrs. A. D. Wood,	3 00
Herbaceous Plants.—Largest and best arranged collection, named, J. W. Manning,	2 00

Gratuities:—

Jackson Dawson, Forty-four species and varieties of Flowering Shrubs,	5 00
Edwin Sheppard, Hollyhocks,	3 00
J. F. C. Hyde, "	3 00
Edwin Fewkes & Son, "	2 00
Paul D. Wallis, "	1 00
D. L. Taylor, " and Sweet Williams,	3 00
W. J. Underwood, Collection of Hardy Carnations,	2 00
Edwin Fewkes & Son, Salpiglossis and Japan Iris,	2 00

Mrs. Francis B. Hayes, Cut Flowers,	$3 00
Miss Sarah W. Story, " "	1 00
Severance Burrage, Wild Flowers,	2 00
Mrs. P. D. Richards, " "	2 00
E. H. Hitchings, " "	1 00
Walter E. Coburn, " "	1 00

JULY 23.

PERENNIAL PHLOXES.—Ten distinct named varieties, one spike each, Edwin Sheppard,	3 00
SWEET PEAS.—Display filling twenty-five vases, J. F. C. Hyde,	4 00
Second, Charles H. Hovey,	3 00
Third, C. W. Hoitt, Nashua, N. H.,	2 00
HERBACEOUS PLANTS.—Largest and best arranged collection, named, William J. Martin,	2 00
Second, J. W. Manning,	1 00

Gratuities:—

John L. Gardner, Six Orchids,	3 00
Benjamin Grey, Cut Orchid Flowers,	2 00
Mrs. Francis B. Hayes, Clerodendron and Cut Flowers,	2 00
J. F. C. Hyde, Hollyhocks,	1 00
Edwin Sheppard, "	1 00
Edwin Fewkes & Son, "	1 00
Mrs. E. M. Gill, Cut Flowers,	1 00
Miss Sarah W. Story, " "	1 00
Mrs. P. D. Richards, Wild Flowers,	1 00
Severance Burrage, " "	1 00
Walter E. Coburn, " "	1 00

JULY 30.

Special Prize, offered by M. B. Faxon.

SWEET PEAS.—Best display, filling fifty vases, judged by published scale of points, J. F. C. Hyde,	10 00

Regular Prizes.

CUT FLOWERS.—Display filling one hundred bottles, Mrs. E. M. Gill,	4 00
Second, Mrs. A. D. Wood,	3 00
NATIVE FERNS.—Best display, Mrs. P. D. Richards,	4 00
Second, Severance Burrage,	3 00
Third, Mrs. C. N. S. Horner,	2 00
HERBACEOUS PLANTS.—Largest and best arranged collection, named, J. W. Manning,	2 00
Second, William J. Martin,	1 00

Gratuities:—

Marshall B. Faxon, Sweet Peas,	$2 00
William J. Martin, Japan Pinks,	1 00
Edwin Fewkes & Son, Dahlias,	1 00
C. T. E. Clapp, Poppies, etc.,	1 00
J. W. Manning, Perennial Phlox,	1 00
Edwin Sheppard, Allamanda, etc.,	1 00
Mrs. P. D. Richards, Native Flowers,	1 00
Walter E. Coburn, " "	1 00
" " Native Ferns,	1 00
Mrs. Francis B. Hayes, Cut Flowers,	1 00
A. A. Hixon, " "	1 00
Miss Sarah W. Story, " "	1 00
E. S. Hill, " "	1 00

AUGUST 6.

PERENNIAL PHLOXES.—Ten distinct named varieties, one spike each, Edwin Sheppard,	3 00
Second, Edwin Fewkes & Son,	2 00
PETUNIAS.—Collection filling thirty bottles, one spray in each, A. A. Hixon,	3 00
Second, Edwin Fewkes & Son,	2 00
Third, Mrs. E. M. Gill,	1 00
CUT FLOWERS.—Display filling one hundred bottles, Mrs. E. M. Gill,	4 00
Second, Mrs. A. D. Wood,	3 00
HERBACEOUS PLANTS.—Largest and best arranged collection, named, William J. Martin,	2 00
Second, J. W. Manning,	1 00
NATIVE FLOWERS.—Collection, Severance Burrage,	3 00
Second, Mrs. P. D. Richards,	2 00

Gratuities:—

William J. Martin, Achimenes,	4 00
James Cartwright, Gladioli,	3 00
John L. Gardner, Fuchsias,	2 00
" " *Brassavola Digbyana*,	1 00
Mrs. Francis B. Hayes, display of Cut Flowers,	3 00
J. W. Manning, *Lilium superbum*,	1 00
O. M. Holmes, *Nelumbium luteum*,	1 00
W. A. Manda, Cut Flowers,	1 00
A. A. Hixon, " "	1 00
John Parker, " "	1 00
E. S. Hill, " "	1 00
Walter E. Coburn, Native Flowers,	1 00

August 13.

Gladioli.—Twenty named varieties, in spikes, H. B. Watts,	$8 00
Second, James Cartwright,	6 00
Ten named varieties, in spikes, Edwin Sheppard,	4 00
Second, H. B. Watts,	3 00
Single spike, named, H. B. Watts,	1 00
Display of named and unnamed varieties, filling one hundred bottles, James Cartwright,	6 00
Second, H. B. Watts,	4 00
Phlox Drummondi.—Fifty bottles, not less than six varieties, the second prize to Charles M. Hovey,	2 00
Herbaceous Plants.—Largest and best arranged collection, named, J. W. Manning,	2 00
Second, William J. Martin,	1 00

Gratuities:—

J. Warren Clark, Seedling Gladioli,	5 00
Edwin Fewkes & Son, Dahlias and Zinnias,	2 00
Mrs. Francis B. Hayes, Zinnias, etc.,	1 00
" " " Cut Flowers,	3 00
John Parker, " "	1 00
Mrs. E. M. Gill, " "	1 00
E. S. Hill, " "	1 00
Mrs. A. D. Wood, Basket of Flowers,	1 00
Walter E. Coburn, Wild Flowers,	1 00

August 20.

Asters.—Truffaut's Pæony Flowered, thirty blooms, not less than twelve varieties, Marshall B. Faxon,	5 00
Second, James O'Brien,	4 00
Third, Edwin Sheppard,	3 00
Victoria Flowered, thirty blooms, not less than twelve varieties, William J. Martin,	5 00
Second, Edwin Sheppard,	4 00
Third, M. B. Faxon,	3 00
Pompon, thirty cut plants, not less than six varieties, the second prize to M. B. Faxon,	3 00
Basket of Flowers.—Best arranged, Mrs. A. D. Wood,	4 00
Second, Mrs. E. F. Hovey,	3 00
Third, James O'Brien,	2 00
Herbaceous Plants.—Largest and best arranged collection, named, J. W. Manning,	2 00
Second, William J. Martin,	1 00

Gratuities:—

Edwin Sheppard, Collection of Asters,	$1 00
Marshall B. Faxon, Asters,	1 00
James O'Brien, "	1 00
Herbert Gleason, *Lilium lancifolium*,	2 00
Edwin Fewkes & Son, Cannas,	1 00
" " " Dahlias,	1 00
George S. Tuttle, Pompon Dahlias,	1 00
H. B. Watts, Gladioli,	1 00
Mrs. Francis B. Hayes, Cut Flowers,	2 00
John Parker, " "	1 00
Mrs. E. M. Gill, " "	1 00
E. S. Hill, " "	1 00

AUGUST 27.

LILIUM LANCIFOLIUM.—Twelve spikes, William J. Martin,	4 00
Second, Thomas C. Thurlow,	3 00
Third, Mrs. E. M. Gill,	2 00
TROPÆOLUMS.—Display filling twenty-five vases, Mrs. E. M. Gill,	3 00
Second, Marshall B. Faxon,	2 00
MARIGOLDS.—Display filling twenty-five vases, L. W. Goodell,	3 00
Second, Marshall B. Faxon,	2 00
HERBACEOUS PLANTS.—Largest and best arranged collection, named, William J. Martin,	2 00
Second, J. W. Manning,	1 00

Gratuities:—

Marshall B. Faxon, Asters,	2 00
J. Warren Clark, Gladioli,	2 00
Edwin Fewkes & Son, Dahlias,	2 00
George S. Tuttle, Pompon Dahlias,	1 00
John Parker, Cut Flowers,	1 00
E. S. Hill, " "	1 00
Edwin Sheppard, " "	1 00
Walter E. Coburn, Native Plants and Flowers,	1 00
Mrs. P. D. Richards, Wild Flowers,	1 00

SEPTEMBER 3.

DOUBLE ZINNIAS.—Twenty-five flowers, not less than six varieties, Edwin Fewkes & Son,	3 00
Second, L. W. Goodell,	2 00
Third, A. B. Howard,	1 00
DIANTHUS.—Annual and Biennial varieties, Collection filling fifty bottles, single trusses, L. W. Goodell,	4 00
Second, Edwin Sheppard,	3 00

Cut Flowers.—Display filling one hundred bottles, Mrs. E. M. Gill,	$4 00
Second, Mrs. A. D. Wood,	3 00
Herbaceous Plants.—Largest and best arranged collection, named, William J. Martin,	2 00
Second, J. W. Manning,	1 00

Gratuities:—

J. W. Clark, Gladioli,	3 00
J. F. C. Hyde, Hibiscus var.,	1 00
A. B. Howard, Verbenas,	1 00
J. F. Marble, Pompon Dahlias,	1 00
George S. Tuttle, " "	1 00
Edwin Fewkes & Son, Dahlias and Zinnias,	1 00
Mrs. Francis B. Hayes, Cut Flowers,	2 00
John Parker, " "	1 00
Edwin Sheppard, " "	1 00
L. W. Goodell, " "	1 00
E. S. Hill, " "	1 00
Miss E. E. Barry, Native Plants,	1 00
W. E. Coburn, Wild Flowers,	1 00
E. H. Hitchings, " "	1 00

ANNUAL EXHIBITION.

September 13, 14, 15 and 16.

Hunnewell Premiums.

Evergreen Trees and Shrubs.—Displays in pots, of other than native evergreens of New England, named, William C. Strong,	$8 00
Second, F. L. Temple,	6 00

Society's Prizes.

Greenhouse Plants.—Twelve Greenhouse and Stove plants, of different named varieties, two Crotons admissible, H. H. Hunnewell,	60 00
Second, William J. Martin,	55 00
Third, George A. Nickerson,	50 00
Fourth, W. A. Manda,	40 00
Fifth, William J. Martin,	30 00
Specimen Flowering Plant.—John L. Gardner,	8 00
Second, Mrs. Francis B. Hayes,	7 00
Third, " " "	6 00
Fourth, John L. Gardner.	5 00
Fifth, William J. Martin,	4 00
Sixth, " "	3 00

VARIEGATED-LEAVED PLANTS.—Six named varieties, William J. Martin,	$12 00
Second, Thomas Clark,	10 00
Third, John L. Gardner,	8 00
Fourth, W. A. Manda,	6 00
Single specimen, named, etc., Charles H. Hovey,	6 00
Second, William J. Martin,	5 00
CALADIUMS.—Four named varieties, William J. Martin,	5 00
FERNS.—Ten named varieties, no Adiantums admissible, W. A. Manda,	15 00
Second, W. A. Manda,	12 00
ADIANTUMS.—Six named varieties, W. A. Manda,	8 00
Second, William J. Martin,	6 00
Third, W. A. Manda,	4 00
TREE FERN.—Thomas W. Dee,	10 00
Second, Mrs. Francis B. Hayes,	8 00
Third, W. A. Manda,	6 00
LYCOPODS.—Four named varieties, William J. Martin,	5 00
Second, W. A. Manda,	3 00
DRACÆNAS.—Six named varieties, H. H. Hunnewell,	8 00
Second, William J. Martin,	6 00
Third, Thomas Clark,	4 00
CROTONS.—Six named varieties, Thomas Clark,	8 00
Second, George A. Nickerson,	6 00
Third, William J. Martin,	5 00
PALMS OR CYCADS.—Single plant, named, H. H. Hunnewell,	10 00
Second, Mrs. Francis B. Hayes,	8 00
NEPENTHES.—Three plants, named, W. A. Manda,	6 00
SUCCULENTS.—Collection of all classes and varieties, including Agaves and Cacti, W. A. Manda,	15 00
Second, Charles H. Hovey,	10 00
ORCHIDS.—Six plants, named varieties, in bloom, Siebrecht & Wadley, New York,	12 00
Second, W. A. Manda,	10 00
Three plants, named varieties, in bloom, Benjamin Grey,	8 00
Second, John L. Gardner,	6 00
Third, Siebrecht & Wadley,	5 00
Single plant in bloom, Benjamin Grey,	5 00
Second, Siebrecht & Wadley,	4 00
Third, W. A Manda,	3 00
Fourth, " "	2 00
DAHLIAS.—Twenty-four named varieties, M. B. Faxon,	8 00
Twelve named varieties, Edwin Fewkes & Son,	4 00
Second, Edwin Sheppard & Son,	3 00
Third, C. W. Hoitt, Nashua, N. H.,	2 00
Six named varieties, Edwin Sheppard,	3 00
Second, M. B. Faxon,	2 00

Third, John Parker,	$1 00
LILIPUTIAN DAHLIAS.—General display, with buds and foliage, filling twenty-five bottles, George S. Tuttle,	5 00
Second, F. Bacheller,	4 00
Third, John Parker,	3 00
SINGLE DAHLIAS.—General display, with buds and foliage, filling fifty bottles, W. A. Manda,	8 00
Second, Edwin Sheppard & Son,	6 00
Third, Mrs. E. M. Gill,	4 00
CUT FLOWERS.—Best display and best kept during the exhibition, filling one hundred and fifty bottles, Mrs. E. M. Gill,	16 00
Second, Mrs. A. D. Wood,	14 00
Third, Charles H. Hovey,	12 00

Special Prize, offered by M. B. Faxon.

PANSIES.—Fifty cut blooms in the Society's flat fruit dishes, judged by published scale of points, L. W. Goodell,	10 00

Gratuities:—

W. A. Manda, Decorative Plants,	$25 00
Mrs. Francis B. Hayes, " "	15 00
H. H. Hunnewell, " "	15 00
Charles H. Hovey, " "	10 00
John L. Gardner, " "	10 00
Jackson Dawson, Sixty-six varieties and species of Fruiting Shrubs,	10 00
William C. Strong, Ornamental Foliage,	3 00
Jacob W. Manning, Evergreen trees,	6 00
George A. Nickerson, Decorative Plants,	5 00
H. B. Watts, Display of Gladioli	5 00
L. W. Goodell, Asters,	5 00
Norton Brothers, Roses, etc.,	3 00
Thomas W. Dee, " "	2 00
" " " *Ficus elastica*,	2 00
Edwin Fewkes & Son, Cannas,	2 00
" " " " Dahlias,	2 00
R. T. Jackson, Marigolds,	2 00
" " Seedling Dahlias,	2 00
William C. Strong, Altheas,	2 00
M. B. Faxon, Dahlias and Nasturtiums,	2 00
F. L. Temple, Shrubs and Herbaceous Plants,	2 00
Mrs. F. B. Hayes, Cut Flowers,	5 00
E. S. Hill, " "	5 00
Edwin Sheppard & Son, " "	3 00
Mrs. E. F. Hovey, " "	2 00
Charles H. Hovey, " "	1 00
J. F. C. Hyde, Hibiscus and Gentian,	1 00

John Parker, Dahlias,	$1 00
Jacob W. Manning, Herbaceous Plants,	2 00
Mrs. P. D. Richards, Native Flowers,	3 00
Miss Mary L. Vinal, " "	1 00
Mrs. E. M. Gill, Vase of Native Flowers,	1 00

CHRYSANTHEMUM SHOW.

NOVEMBER 9, 10, AND 11.

Special Prize.

CHRYSANTHEMUMS.—Display of twenty named plants for decorative purposes, in not over eight-inch pots, Edwin Fewkes & Son,	$100 00
Second, W. H. Elliott,	75 00
Third, E. A. Wood,	50 00

Regular Prizes.

Six Incurved or Chinese, distinct named varieties, E. W. Wood,	20 00
Second, P. Melly,	15 00
Six Japanese, distinct named varieties, P. Melly,	20 00
Second, E. Fewkes & Son,	15 00
Third, E. W. Wood,	10 00
Four Pompons, distinct named varieties, E. W. Wood,	10 00
Second, William J. Martin,	8 00
Specimen Plant, Incurved or Chinese, named, P. Melly,	8 00
Second, E. W. Wood,	6 00
Third, Edwin Fewkes & Son,	5 00
Specimen Plant, Japanese, named, E. W. Wood,	8 00
Second, William J. Martin,	6 00
Third, Patrick Melia,	5 00
Specimen Plant, Pompon, named, E. W. Wood,	6 00
Second, Edwin Fewkes & Son,	5 00
Third, P. Melly,	4 00
Specimen Plant, Anemone, named, E. W. Wood,	6 00
Second, Mrs. Francis B. Hayes,	5 00
Specimen trained Standard, any class, named, William J. Martin, Jardin des Plantes,	8 00
Second, William J. Martin, Grandiflora,	6 00
Third, William J. Martin, Fair Maid of Guernsey,	5 00
Display of fifteen named plants in pots, all classes, distinct varieties, E. W. Wood,	50 00
Second, P. Melly,	40 00
Third, William J. Martin,	30 00
Fourth, Edwin Fewkes & Son,	25 00
Twelve Cut Blooms, Large Flowered or Chinese, named, in vases, Edwin Fewkes & Son,	8 00

Second, Mrs. J. M. Woodice,	$6 00
Twelve Cut Blooms, Japanese, named, in vases, Edwin Fewkes & Son,	8 00
Second, Mrs. J. M. Woodice,	6 00
Third, Charles H. Hovey,	5 00
Six Cut Blooms, reflexed, named, in vases, Edwin Fewkes & Son,	4 00
Second, E. A. Wood,	3 00
Six Cut Blooms, Large Flowered or Chinese, named, in vases, P. Melly,	4 00
Second, E. A. Wood,	3 00
Six Cut Blooms, Japanese, named, in vases, Edwin Fewkes & Son,	4 00
Second, Mrs. J. M. Woodice,	3 00
Third, E. A. Wood,	2 00
Display of all classes, filling fifty vases, Edwin Fewkes & Son.	12 00
Second, Mrs. Francis B. Hayes,	10 00
Third, P. Melly,	8 00
Fourth, Charles H. Hovey,	6 00
Display of all classes, filling twenty-five vases, Edwin Fewkes & Son,	6 00
Second, Mrs. E. M. Gill,	5 00
Bouquets.—Pair of Hand, Mrs. E. M. Gill,	5 00
Orchids.—Three Plants, named varieties, in bloom, E. W. Gilmore,	10 00
Second, E. W. Gilmore,	8 00
Third, E. W. Gilmore,	6 00
Single plant in bloom E. W. Gilmore, *Vanda cærulea*,	5 00
Second, E. W. Gilmore, Oncidium,	4 00

Gratuities:—

Edwin Fewkes & Son, Display of Plants,	15 00
H. P. Walcott, " " "	15 00
Mrs. Francis B. Hayes, " " "	15 00
William J. Martin, " " "	6 00
W. F. Melly, " " "	5 00
S. Neil, Display of Chrysanthemums,	10 00
Mrs. M. J. Plumstead, Seedling Chrysanthemums,	1 00
Norton Brothers, Roses,	5 00
E. W. Gilmore, Plants and Flowers,	3 00
Edwin Sheppard & Son, Display of Cut Flowers,	5 00
Mrs. Francis B. Hayes, " " " "	2 00
Mrs. P. D. Richards, Native Plants,	2 00

SILVER MEDALS.

February 5. Mrs. Francis B. Hayes, *Cœlogyne cristata.*

March 5. David Allan, *Cyclamen gigantea alba.*

Spring Exhibition, March 23–25. John Henderson, Flushing, N. Y., Rose Papa Gontier.

Spring Exhibition, March 23–25. Charles F. Evans, Philadelphia, Rose The Puritan.

" " " " W. A. Manda, Superior Grouping of Plants.

May 14. David Allan, *Dendrobium thyrsiflorum.*

Rose Exhibition, June 21–22. George McWilliams, gardener to J. Lassell, *Heliconia striata.*

August 6. William J. Martin, Superior culture of *Eucharis Amazonica.*

September 3. W. A. Manda, Hardy Herbaceous Plants, and Hardy Bulbs, with foliage; exhibited during the season.

" " Mrs. P. D. Richards, Educational displays of native plants in 1887.

Annual Exhibition, September 13–16. Siebrecht & Wadley, *Vanda Sanderiana.*

" " " " John Simpkins, *Victoria regia.*

October 29. H. H. Hunnewell, *Cypripedium Spicerianum.*

Chrysanthemum Show. November 9–11. Thomas Greaves, *Vanda Sanderiana.*

" " " " Edwin Fewkes & Son, New Chrysanthemum Mrs. Alpheus Hardy.

September 3. Nathaniel T. Kidder, Herbaceous Plants exhibited during the season.

" " W. A. Manda, Annual Flowers exhibited during the season.

BRONZE MEDALS.

September 3. Mrs. E. M. Gill, Hardy Herbaceous Plants and Hardy Bulbs with foliage; exhibited during the season.

" " Jacob W. Manning, Herbaceous Plants exhibited during the season.

" " Charles H. Hovey, Annual Flowers exhibited during the season.

FIRST CLASS CERTIFICATES OF MERIT.

January 22. Robert Blair, gardener to A. W. Spencer, *Lælia albida.*

Spring Exhibition, March 23–25. Charles M. Hovey, Ivy-leaved Pelargonium Fürst Josef von Hohenzollern.

" " " " Edwin Fewkes & Son, Cultivation of *Iris Susiana.*

" " " " F. Palmer, Superior culture of Rose William Francis Bennett.

April 2. John Henderson, Flushing, N. Y., Hybrid Perpetual Rose Her Majesty.

" " Mrs. E. M. Gill, Seedling Amaryllis Martha.

" 9. C. H. Eldering & Sons, Seedling Hyacinth Anna.

" 16. W. A. Manda, *Cypripedium acaule album.*

May 28. W. C. Strong, Seedling *Azalea mollis.*

Rhododendron Show, June 4. Kenneth Finlayson, Superior culture of Gloxinias.

" " " " W. A. Manda, *Erigeron aurantiacus* (new).

June 11. Mrs. Francis B. Hayes, Seedling Clematis, lavender.

" " " " " " " " lilac.

" " " " " " " Rhododendron.

Rose Exhibition, June 21. W. A. Manda, *Cattleya Eldorado Allaniana.*

June 28. James Comley, Seedling Magnolia, cross of *Grandiflora* and *Alexandrine.*

July 9. Siebrecht & Wadley, New York, *Cattleya gigas Rochelliana alba.*

August 13. George S. Tuttle, Superior Pompon Dahlias.

" 20. J. Warren Clark, Seedling Gladioli Pride of Millis, and Nugget of Gold.

September 3. William E. Endicott, Gladioli W. E. Endicott, and Canton.

Annual Exhibition, September 13–16. H. H. Hunnewell, *Phrynium variegatum.*

" " " " John L. Gardner, *Nepholepis rupescens.*

" " " " F. L. Temple, *Syringa ligustrina, Pekinensis pendula* (Weeping Lilac).

Exhibition of Autumn Fruits, October 1. James Comley, Seedling Tropæolum,

Chrysanthemum Show, Nov. 9–11. Mrs. J. M. Woodice, House Culture of Chrysanthemums.

" " " " William J. Martin, standard Chrysanthemum Plants.

" " " " H. P. Walcott, Display of Seedling Chrysanthemum blooms.

" " " " Arthur H. Fewkes, Seedling Chrysanthemums.

" " " " George Seaverns, Seedling Chrysanthemums.

November 19. George E. Buxton, Seedling Carnation White Gem.

REPORT

OF THE

COMMITTEE ON FRUITS,

FOR THE YEAR 1887.

By E. W. WOOD, Chairman.

The past year has been more than usually favorable for the growth of our various fruits; the frequent rains through the season having kept vegetation in a constantly growing condition. Fruit did not attain its full growth and maturity as early as in some previous years, and the earlier exhibitions did not compare favorably with those held in October and November.

We have again to report a continued increase in the Apple crop on the odd year. While formerly we were almost entirely dependent upon other states in alternate years for this fruit, the prizes have almost all been awarded the past season, and the supply has been fully equal to the demand for home consumption. This change has been effected in some instances by the destruction of the crop by canker worms for one or more years, and the trees coming again into bearing on the odd instead of the even year; in other cases the crop was destroyed for a single year by late frosts, causing a change in the bearing year. The crops of successive years have thus become more evenly balanced, to the advantage of both producer and consumer.

We have again had fair exhibits of Peaches. After four years of barrenness, covering almost the ordinary lifetime of the peach tree, many growers had failed to keep up their stock of trees and neglected those they had; yet the exhibits of this fruit were fair in quantity and quality. Those who grow the peach under present

conditions must not only exercise eternal vigilance, but equal persistence. However, the trees are easily and quickly grown, and an occasional crop will pay the expense of their cultivation.

The strawberry growers thought it was impossible to make a creditable exhibition on the day fixed for the Rose Show, and it was postponed to a later date. As this exhibition is one for which an admission fee is charged, it seems desirable to make it as attractive as possible to those interested in both fruit and flowers; and the experience of the past season as well as of some former years, goes to show the desirability of uniting the Rose and Strawberry shows in one exhibition. So much depends upon the condition of the weather at the time of this exhibition that it is extremely difficult for the Committee of Arrangements to fix the most desirable date, and still have time to give sufficient notice.

The amount of fruit shown at the last Strawberry Show was above the average of past years. The Belmont, Jewell, and Sharpless were the largest prize winners. The latter, having the advantage of time, has been the most widely disseminated; but the Belmont and Jewell have been very generally introduced the past season, and another year will determine their value for general cultivation. Within the past few years there has been a tendency among growers of this fruit to sacrifice quality to size. The three varieties alluded to, are all large and attractive, and command the highest prices in the market, but those who grow the fruit for their own table can hardly afford to accept them in exchange for La Constante, Wilder, Jucunda, and Hervey Davis.

The displays of other small fruits at the weekly exhibitions through the summer have been good; those of Cherries and Currants especially so. Blackberries and Raspberries are not so generally grown, as we have not a variety of either, of good size and quality, that has proved entirely hardy, and the wild fruits of these species form no exception.

The Annual Exhibition was held in connection with that of the American Pomological Society, and, in compliance with the wishes of its members, at an earlier date than was desirable for making the most creditable show of our own fruits. The quantity shown by members of our Society was above the average, but the specimens were not so large as in some former years. The quantity of fruit shown by members of the Pomological Society was unexpectedly small. The reason assigned was that the fruit crop in several of

the Western States the past season, was so nearly a failure that they could not make a creditable exhibition.

A very fine display of Apples was made from Arkansas; not as fine in grain and firm in flesh as our northern apples, but larger and fairer. The collection of seedlings from that state was especially noticeable; some of them were very fine specimens. The other exhibits of apples were by the Lincoln and Worcester Granges, and C. C. Shaw, of Milford, N. H.

Pears were shown by Ellwanger & Barry, of Rochester, N. Y., and by Charles H. Hovey, Warren Fenno, and Edward B. Wilder, members of this Society.

The prizes for Peaches were awarded to C. S. Smith, of Lincoln, Smith & Kerman, of St. Catherines, Ontario, and David L. Fisk, of Grafton.

An excellent display of one hundred and sixty-five varieties of Native Grapes was made by the T. S. Hubbard Company, of Fredonia, N. Y.; the first prize was awarded for this collection, and the second to E. Williams, of Montclair, N. J., these being the only collections offered.

There were no competitors for the prizes offered for Russian Apples, Plums, or Sub-tropical Fruits.

Of the one hundred and eighty-seven prizes offered by this Society, at the Annual Exhibition, for Pears and Apples, one hundred and eighty-two were awarded; of the eighteen prizes for Peaches in open culture, fifteen were taken; of the thirty-three prizes for Native Grapes, twenty-seven were taken, and of these eleven were taken by one exhibitor for fruit grown in New Jersey. The advantage to this exhibitor over the growers in this state in respect to the time of the exhibition, was shown by the fact that he took a prize for every variety except Moore's Early; that being the only one that had fully reached maturity here. It may be said that this exhibition was an exceptional one, and the same conditions are not likely to occur again; but it is not the first instance of fruit exhibited from other states having from the necessity of the case, a decided advantage in point of time, and suggests the inquiry whether our rules should not be so amended as to give members of the Society who are regular contributors at least equal advantages.

The attention of the Committee has not been called to as many new fruits as usual, the past season. The prize offered for a new

variety of Strawberry was awarded to a seedling shown by Warren Heustis & Son, and named the Bay State. It is above medium size, of good form, very dark color, and fair quality. The most noticeable single exhibit of fruit at the Annual Exhibition was an old variety shown by F. R. Shattuck, who placed upon the table some thirty specimens of Bartlett pears picked from the original imported Bartlett Tree, in Roxbury. Though not as large as some others that were shown of the same variety, yet in smoothness of surface and in form and color, they were superior to any others on exhibition.

At the November Exhibition Ex-President Hyde called the Committee's attention to a dish of apples which he had received from Worcester County, grown by a Mr. Barnes, who had given the fruit his own name, and sent a full account of the conditions under which it was grown, such as would seem to leave no doubt that it was a seedling variety. Soon after it was placed upon the table it was recognized by a member of the Society who had grown it for many, and known it for more than fifty, years as the Murphy. He sent some of his own fruit to be compared with that on exhibition, and there was no room for doubt as to their being identical. It is a medium sized red apple with peculiar black striped markings, which once seen would be readily recognized; and a small calyx in a very shallow corrugated basin. This is an instance of one of the ways by which synonyms become so largely multiplied.

The Hayes Grape, and the Belmont and Jewell Strawberries are the only fruits shown the past year as competing for Prospective Prizes.

Of the five hundred dollars appropriated for Special Prizes for fruit at the Pomological Society's Exhibition, there were awarded two hundred and fifteen dollars, leaving a balance of two hundred and eighty-five dollars. Of the seventeen hundred dollars appropriated for prizes and gratuities for the Society's Exhibitions, fifteen hundred and sixty-eight dollars were awarded, leaving a balance of one hundred and thirty-two dollars; unexpended balance of both appropriations, four hundred and seventeen dollars.

The results of the year show that there is a constantly increasing demand for fruit. The improvement in the different varieties makes it more desirable as a dessert for the table, the constantly increasing knowledge of its health-giving qualities as an article of food increases the demand for it for domestic uses, and the advan-

tages which this State has for disposing of any surplus, in addition to the considerations already named, tend to the conclusion that no branch of agriculture in Massachusetts offers a more inviting field than the cultivation of fruit.

E. W. Wood,
Samuel Hartwell,
Charles F. Curtis,
O. B. Hadwen,
Jacob W. Manning,
Benj. G. Smith,
Warren Fenno.
} *Fruit Committee.*

PRIZES AND GRATUITIES AWARDED FOR FRUITS.

February 19.

Gratuity:—

Nahum Stetson, Oranges, Silver Medal.

SPRING EXHIBITION.

March 23, 24, and 25.

Winter Apples,—George C. Rice, Tompkins King,	$3 00
Second, Warren Fenno, Northern Spy,	2 00
Winter Pears.—Hittinger Brothers, Anjou,	3 00
Second, Warren Fenno, Josephine of Malines,	2 00
Strawberries.—One pint, Hittinger Brothers, Sharpless,	3 00

Gratuities:—

George C. Rice, Apples,	$2 00
Samuel Hartwell, "	1 00
H. Gleason, "	1 00
Warren Fenno, "	1 00
W. H. Badlam, "	1 00
O. B. Hadwen, Apples and Pears,	1 00
Mrs. H. V. Draper, Pears,	1 00
J. F. Smith, "	1 00
B. K. Bliss, Oranges,	1 00
Sewall Fisher, Melon Pear,	1 00

April 22.

Gratuity:—

W. C. Winter, Peaches,	1 00

May 7.

Gratuity:—

James Comley, Strawberries,	3 00

June 11.

Gratuities:—

L. W. Weston, Strawberries,	2 00
Charles S. Smith, "	2 00

JUNE 18.

Gratuities:—

William Doran & Son, Strawberries,	$1 00
S. S. Smith, "	1 00

ROSE EXHIBITION.

JUNE 21.

CHERRIES.—I. P. Langworthy, Knight's Early Black,	$2 00
FOREIGN GRAPES.—David Allan, Black Hamburg,	6 00
Second, E. S. Converse, Black Hamburg,	4 00

Gratuities:—

James H. Kimball, Strawberries,	3 00
George Hill, "	3 00
Warren Heustis & Son, "	2 00
George V. Fletcher, "	2 00
J. B. Moore & Son, "	1 00
William J. Martin, Collection of Strawberries,	1 00
I. E. Coburn, " " "	1 00
George F. Wheeler, " " "	1 00
L. W. Weston, " " "	1 00
W. A. Manda, Banana in fruit,	3 00

STRAWBERRY EXHIBITION.

JUNE 28.

Special Prizes.

STRAWBERRIES.—Four quarts of any variety, Warren Heustis & Son, Belmont,	$20 00
Second, Warren Heustis & Son, Jewell,	15 00
Third, Joseph D. Fitts, Providence, R. I., Jersey Queen,	10 00
For the best two quarts of any variety judged by points, James H. Kimball, Providence, R. I., Belmont,	12 00
Second, Warren Heustis & Son, Belmont,	9 00
Third, Warren Heustis & Son, Jewell,	6 00
Fourth, E. W. Wood, Hervey Davis,	3 00
For the best exhibition of a Seedling Strawberry introduced within five years, Warren Heustis & Son, Bay State, Silver Medal.	

Regular Prizes.

For the largest and best collection not less than ten baskets, two quarts each, Warren Heustis & Son,	20 00
Two quarts Belmont, Warren Heustis & Son,	4 00

Bidwell, Isaac E. Coburn,	$4 00
The Third Prize to William G. Prescott,	2 00
Charles Downing, C. N. Brackett,	4 00
Second, Warren Fenno,	3 00
Third, J. D. Fitts,	2 00
Cumberland, E. W. Wood,	4 00
Hervey Davis, Mrs. Francis B. Hayes,	4 00
Second, John B. Moore & Son,	3 00
Jewell, Isaac E. Coburn,	4 00
Miner's Prolific, O. R. Robbins,	4 00
Second, E. W. Wood,	3 00
Third, L. W. Weston,	2 00
Sharpless, Charles D. Tuttle,	4 00
Second, C. M. Hovey,	3 00
Third, William G. Prescott,	2 00
One quart Belmont, Warren Heustis & Son.	3 00
Second, Isaac E. Coburn,	2 00
Bidwell, Isaac E. Coburn,	3 00
Brighton, Warren Fenno,	3 00
Charles Downing, Isaac E. Coburn,	3 00
Second, Warren Fenno,	2 00
Crescent, Isaac E. Coburn,	3 00
Second, L. W. Weston	2 00
Cumberland, E. W. Wood,	3 00
Hervey Davis, Mrs. Francis B. Hayes,	3 00
Second, E. W. Wood,	2 00
Jersey Queen, J. D. Fitts,	3 00
Jewell, Isaac E. Coburn,	3 00
Second, O. R. Robbins,	2 00
Jucunda, Charles F. Curtis,	3 00
Manchester, the Second Prize to J. D. Fitts,	2 00
Miner's Prolific, Isaac E. Coburn,	3 00
Second, L. W. Weston,	2 00
Pioneer, E. W. Wood,	3 00
Sharpless, Edward B. Wilder,	3 00
Second, L. W. Weston,	2 00
Any other variety, Edward B. Wilder,	3 00
Second, Isaac E. Coburn,	2 00
Third, E. W. Wood,	1 00
Collection not less than six varieties, one quart each, George T. Wheeler,	8 00
Second, J. D. Fitts,	6 00
CHERRIES.—Two quarts of any variety, Edwin Hastings, Black Tartarian,	2 00
Second, S. Lockwood, Coe's Transparent,	1 00

Gratuity:—

Samuel Hartwell, Cherries,	1 00

JULY 2.

STRAWBERRIES.—One quart of any variety, Warren Heustis & Son, Belmont,	$3 00
Second, O. R. Robbins, Miner's Prolific,	2 00
Third, L. W. Weston, Sharpless,	1 00
CHERRIES.—Two quarts of Black Tartarian, S. Lockwood,	2 00
Coe's Transparent, S. Lockwood,	2 00
Downer's Late, S. Lockwood,	2 00
Second, Warren Fenno,	1 00
Any other variety, A. S. McIntosh, Reine Hortense,	2 00
Second, Charles N. Brackett, Merriam,	1 00

JULY 9.

CHERRIES.—Two quarts of any variety, Warren Fenno, Norfolk,	2 00
Second, Charles S. Smith, Seedling,	1 00
RASPBERRIES.—Two quarts of any variety, William Doran & Son, Red Antwerp,	3 00
CURRANTS.—Two quarts of any Red variety, William Doran & Son, Versaillaise,	4 00
Second, B. G. Smith, Versaillaise,	3 00
Third, C. D. Tuttle, "	2 00
Two quarts of any White variety, B. G. Smith, Transparent,	3 00
Second, B. G. Smith, White Gondouin,	2 00

Gratuities:—

Charles N. Brackett, Cherries,	1 00
M. W. Chadbourne, Currants,	1 00

JULY 16.

RASPBERRIES.—Not less than four varieties, two quarts of each, William Doran & Son,	4 00
Two quarts of any variety, William Doran & Son, Franconia,	3 00
Second, B. G. Smith, Franconia,	2 00
CURRANTS.—One quart of Versaillaise, William Doran & Son,	2 00
Second, Mrs. E. M. Gill,	1 00
Any other Red variety, Sidney Lawrence, Fay's,	2 00
Second, B. G. Smith, Fay's,	1 00
Any White variety, B. G. Smith, Transparent,	2 00
Second, Mrs. E. M. Gill, Dana's Transparent,	1 00

Gratuity:—

Warren Fenno, Cherries,	1 00

JULY 23.

RASPBERRIES.—Two quarts of any variety, Charles Garfield, Seedling,	3 00
Second, Charles F. Curtis, Cuthbert,	2 00

Third, Mrs. Francis B. Hayes, Cuthbert,	$1 00
CURRANTS.—One quart of any Red variety, William Doran & Son,	3 00
Second, B. G. Smith,	2 00
Third, Mrs. E. M. Gill,	1 00
One quart of any White variety, B. G. Smith, Dana's Transparent,	2 00
Second, B. G. Smith, Transparent,	1 00
GOOSEBERRIES.—Two quarts of any Native variety, B. G. Smith, Smith's Improved,	3 00
Second, Warren Fenno, Downing,	2 00
Third, B. G. Smith, Downing,	1 00

Gratuities:—

Charles Garfield, Gooseberries,	1 00
Edwin A. Hall, "	1 00
Warren Fenno, "	1 00
Winter Brothers, Foreign Grapes,	5 00

JULY 30.

BLACKBERRIES.—Two quarts of any variety, A. S. McIntosh, Dorchester,	3 00
Second, W. C. Eustis, Dorchester,	2 00
Third, B. G. Smith, "	1 00
GOOSEBERRIES.—Two quarts of any Foreign variety, B. G. Smith, Bang-Up,	2 00
Second, B. G. Smith, Whitesmith,	1 00
PEARS.—Summer Doyenne, Warren Fenno,	3 00
Second, Horace Eaton,	2 00
Third, C. D. Tuttle,	1 00
Any other variety, A. S. McIntosh, Madeleine,	3 00
Second, Warren Fenno, Madeleine,	2 00
Third, C. M. Hovey, Suprême de Quimper,	1 00
PEACHES.—Any variety, Samuel Hartwell, Waterloo,	3 00
Second, Charles S. Smith, Amsden,	2 00

Gratuities:—

Mrs. E. M. Gill, Gooseberries,	1 00
Warren Fenno, "	1 00
Charles Garfield, Raspberries and Gooseberries,	1 00
B. G. Smith, Blackberries and Blueberries,	1 00
L. W. Weston, Blackberries and Peaches,	1 00
Samuel Hartwell, Apples and Gooseberries,	1 00

AUGUST 6.

APPLES.—Sweet Bough, Warren Heustis & Son,	3 00
Second, Warren Fenno,	2 00
Third, Joseph G. Coolidge,	1 00

Any other variety, W. S. Frost, Williams,	$3 00
Second, Theodore Wellington, Astrachan,	2 00
Third, Samuel Hartwell, Williams,	1 00
PEARS.—Giffard, B. G. Smith,	3 00
Second, Mrs. Mary Langmaid,	2 00
Third, Warren Fenno,	1 00
Any other variety, C. N. Brackett, Bloodgood,	3 00
Second, C. M. Hovey, Brandywine,	2 00
Third, C. N. Brackett, Jargonelle,	1 00
BLACKBERRIES.—Two quarts of any variety, William J. Martin, Dorchester,	3 00
Second, A. S. McIntosh, Dorchester,	2 00
Third, G. D. Tuttle, Wachusett,	1 00
PEACHES.—Any variety, Mrs. E. Ward, Amsden,	3 00
Second, William S. Janvrin, Early July,	2 00

Gratuities:—

Warren Fenno, Apricots,	1 00
Samuel Hartwell, Apples and Peaches,	1 00
B. G. Smith, Plums and Gooseberries,	1 00

AUGUST 13.

APPLES.—Oldenburg, the Second Prize to Samuel Hartwell,	2 00
Red Astrachan, C. C. Shaw,	3 00
Second, Samuel Hartwell,	2 00
Third, J. T. Foster,	1 00
Williams's Favorite, C. F. Curtis,	3 00
Second, Samuel Hartwell,	2 00
Third, C. N. Brackett,	1 00
PEARS.—Clapp's Favorite, E. W. Wood,	3 00
Second, C. F. Curtis,	2 00
Third, C. N. Brackett,	1 00
Manning's Elizabeth, Mrs. Mary Langmaid,	2 00
Second Warren Fenno,	1 00
Any other variety, George Frost, Suprême de Quimper,	2 00
Second, N. D. Harrington, Bloodgood,	1 00
PEACHES.—Any variety, A. M. Davenport, Rivers,	3 00
Second, Samuel Hartwell, Crawford's Early,	2 00

Gratuities:—

Samuel Hartwell, Apples and Peaches,	1 00
Warren Fenno, Apricots,	1 00

AUGUST 20.

PEARS.—Bartlett, C. N. Brackett,	3 00
Second, Samuel Hartwell,	2 00
Third, E. W. Wood,	1 00

Rostiezer, Michael Finegan,	$3 00
Second, C. N. Brackett,	2 00
Third, M. W. Chadbourne,	1 00
Tyson, A. S. McIntosh,	3 00
Second, Warren Fenno,	2 00
Third, C. N. Brackett,	1 00
Any other variety, A. S. McIntosh, Clapp's Favorite,	3 00
Second, Edwin A. Hall, " "	2 00
Third, C. N. Brackett, " "	1 00
PEACHES.—Any variety, C. S. Smith, Mountain Rose,	3 00
Second, George V. Fletcher, Hale's Early,	2 00
Third, Warren Fenno, " "	1 00

Gratuities:—

G. D. Tuttle, Apples and Pears,	1 00
Samuel Hartwell, Apples and Plums,	1 00

AUGUST 27.

APPLES.—Chenango, Charles F. Curtis,	3 00
Second, Samuel Hartwell,	2 00
Maiden's Blush, Warren Fenno,	3 00
Second, Horace Eaton,	2 00
Third, Charles S. Smith,	1 00
Any other variety, Warren Fenno, Summer Pippin,	3 00
Second, Charles F. Curtis, Williams's Favorite,	2 00
Third, C. N. Brackett, Sparhawk,	1 00
PEARS.—Bartlett, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Third, George Frost,	1 00
Any other variety, William H. Hunt, Clapp's Favorite,	3 00
Second, M. W. Chadbourne, " "	2 00
Third, L. M. Chase, " "	1 00
PEACHES.—Any variety, Charles S. Smith, Mountain Rose,	3 00
Second, Mrs. Mary T. Goddard, Crawford's Early,	2 00
Third, Samuel Hartwell, " "	1 00
PLUMS.—Mrs. H. V. Draper, Washington,	3 00
Second, Samuel Hartwell, "	2 00
Third, B. G. Smith, Green Gage,	1 00
NATIVE GRAPES.—Six bunches of any variety, Cephas H. Brackett,	3 00
Second, B. G. Smith, Champion,	2 00
Third, Samuel Hartwell, Moore's Early,	1 00

Gratuity :—

Samuel Hartwell, Apples,	1 00

SEPTEMBER 3.

APPLES.—Foundling, Charles S. Smith,	3 00
Second, L. W. Weston,	2 00

Third, Samuel Hartwell,	$1 00
Gravenstein, Samuel Hartwell,	3 00
Second, Charles S. Smith,	2 00
Third, Mrs. Mary T. Goddard,	1 00
Porter, L. W. Weston,	3 00
Second, P. G. Hanson,	2 00
Third, W. H. Teel,	1 00
Any other variety, Warren Fenno, Summer Pippin,	3 00
Second, Samuel Hartwell, " "	2 00
Third, C. W. Park, Maiden's Blush,	1 00
PEARS.—Andrews, Samuel Saunders,	3 00
Second, Warren Fenno,	2 00
Third, B. Scullings,	1 00
Boussock, C. N. Brackett,	3 00
Second, O. B. Hadwen,	2 00
Third, Mrs. Mary Langmaid,	1 00
Any other variety, Samuel Hartwell, Souvenir du Congrès,	3 00
Second, C. N. Brackett, " " "	2 00
Third, Samuel Hartwell, Bartlett,	1 00
PEACHES.—Collection, Charles S. Smith,	4 00
Second, Samuel Hartwell,	3 00
Third, N. D. Harrington,	2 00
PLUMS.—Collection, Samuel Hartwell,	3 00
Any one variety, Robert Manning, Jefferson,	2 00
Second, Samuel Hartwell, Yellow Gage,	1 00
NATIVE GRAPES.—Six bunches of Cottage, B. G. Smith,	3 00
Moore's Early, Samuel Hartwell,	3 00
Second, O. R. Robbins,	2 00
Any other variety, B. G. Smith, Lady,	3 00
Second, Cephas H. Brackett, Hartford,	2 00

Gratuities:—

Theodore Wellington, Apples,	1 00
L. M. Chase, Plums,	1 00

ANNUAL EXHIBITION.

SEPTEMBER 13, 14, 15, AND 16.

Special Prizes for Apples, from the Benjamin V. French Fund.

Baldwin, C. C. Shaw,	$5 00
Gravenstein, Samuel Hartwell,	5 00
Hubbardston, Mrs. A. Ward,	5 00
Rhode Island Greening, Mrs. A. Ward,	5 00

Special Prizes offered by the Society.

PEARS.—Anjou, Samuel Hartwell,	5 00

Bartlett, Samuel Hartwell,	$5 00
Bosc, Mrs. Mary Langmaid,	5 00
Seckel, M. W. Chadbourne,	5 00
Sheldon, L. W. Weston,	5 00
PEACHES.—Any variety, Samuel Hartwell, Foster,	5 00
FOREIGN GRAPES.—For the heaviest and best ripened bunch of any Foreign Black Grape, not less than five pounds, David Allan, Alicante,	8 00
For the heaviest and best ripened bunch of any Foreign White Grape, not less than five pounds, John Simpkins, Syrian,	8 00

Special Prizes offered in view of the meeting of the American Pomological Society.

GENERAL DISPLAY OF FRUITS OF ALL KINDS.—For the best, Lincoln Grange,	25 00
APPLES.—For the best collection, Arkansas Exhibit,	25 00
Second, Worcester Grange,	15 00
Third, C. C. Shaw, Milford, N. H.,	10 00
PEARS.—For the best collection, Ellwanger & Barry, Rochester, N. Y.,	25 00
Second, Charles H. Hovey,	15 00
Third, Warren Fenno,	10 00
PEACHES.—For the best collection, Charles S. Smith,	25 00
Second, Smith & Kerman, St. Catherines, Ontario,	15 00
Third, David L. Fisk,	10 00
NATIVE GRAPES.—For the best collection, T. S. Hubbard Company, Fredonia, N. Y.,	25 00
Second, E. Williams, Montclair, N. J.,	15 00

Regular Prizes.

APPLES.—Baldwin, L. W. Weston,	4 00
Second, Mrs. A. Ward,	3 00
Third, W. H. Teele,	2 00
Danvers Sweet, C. C. Shaw,	3 00
Second, J. T. Foster,	2 00
Dutch Codlin, A. S. McIntosh,	2 00
Second, L. W. Weston,	1 00
Fall Orange or Holden, H. D. Clark,	3 00
Second, C. E. Grant,	2 00
Third, Samuel Hartwell,	1 00
Fameuse, S. H. Coombs,	3 00
Second, George V. Fletcher,	2 00
Third, Mrs. A. Ward,	1 00
Foundling, Reuben Handley,	4 00
Second, L. W. Weston,	3 00
Third, Charles S. Smith,	2 00

Golden Russet, Warren Fenno,	$2 00
Second, Horace Eaton,	1 00
Gravenstein, Samuel Hartwell,	4 00
Second, Mrs. Mary T. Goddard,	3 00
Third, Warren Fenno,	2 00
Hubbardston, M. W. Chadbourne,	4 00
Second, Samuel Hartwell,	3 00
Third, C. C. Shaw,	2 00
Hunt Russet, W. H. Teel,	3 00
Second, Samuel Hartwell,	2 00
Third, Horace Eaton,	1 00
Lady's Sweet, Horace Eaton,	2 00
Second, Warren Fenno,	1 00
Leicester, O. B. Hadwen,	2 00
Lyscom, Samuel Hartwell,	2 00
Second, T. B. Cowan,	1 00
Maiden's Blush, C. C. Shaw,	2 00
Second, Warren Fenno,	1 00
Mother, Warren Fenno,	3 00
Second, W. H. Teel,	2 00
Northern Spy, C. C. Shaw,	3 00
Second, Warren Fenno,	2 00
Third, F. W. Grout,	1 00
Porter, George W. Stevens,	3 00
Second, Samuel Hartwell,	2 00
Third, L. W. Weston,	1 00
Pumpkin Sweet, Samuel Hartwell,	2 00
Second, L. W. Weston,	1 00
Rhode Island Greening, Mrs. A. Ward,	4 00
Second, W. H. Teel,	3 00
Third, George V. Fletcher,	2 00
Roxbury Russet, Mrs. Mary T. Goddard,	4 00
Second, G. Sanderson,	3 00
Third, James Cutler,	2 00
Tolman Sweet, Josiah Crosby,	3 00
Second, J. T. Foster,	2 00
Third, Charles F. Curtis,	1 00
Tompkins King, George C. Rice,	3 00
Second, C. C. Shaw,	2 00
Third, Samuel Hartwell,	1 00
Washington Royal or Palmer, Josiah Crosby,	3 00
Second, O. B. Hadwen,	2 00
Washington Strawberry, George C. Rice,	2 00
Second, Warren Fenno,	1 00
Any other variety, John E. Bowen, Bowen,	3 00
Second, Warren Fenno, Summer Pippin,	2 00
Third, Samuel Hartwell, " "	1 00

Crab Apples.—Hyslop, Mrs. A. Ward,	$2 00
Second, Cephas H. Brackett,	1 00
Transcendent, George W. Stevens,	2 00
Second, A. Dickinson,	1 00
Pears.—Angouleme, John McClure,	4 00
Second, Edwin A. Hall,	3 00
Third, Warren Fenno,	2 00
Anjou, Mrs. Mary Langmaid,	4 00
Second, J. Albro,	3 00
Third, Cephas H. Brackett,	2 00
Fourth, John McClure,	1 00
Bartlett, Leverett M. Chase,	4 00
Second, T. M. Davis,	3 00
Third, Samuel Hartwell,	2 00
Fourth, John McClure,	1 00
Belle Lucrative, A. Dickinson,	3 00
Second, Mrs. Mary Langmaid,	2 00
Third, Warren Fenno,	1 00
Bosc, John L. Bird,	4 00
Second, Charles F. Curtis,	3 00
Third, William P. Walker,	2 00
Fourth, Warren Fenno,	1 00
Boussock, C. N. Brackett,	3 00
Second, L. M. Chase,	2 00
Third, O. B. Hadwen,	1 00
Clairgeau, Mrs. Mary Langmaid,	3 00
Second, W. P. Plimpton,	2 00
Third, Warren Fenno,	1 00
Comice, Warren Fenno,	3 00
Second, W. P. Walker,	2 00
Third, C. N. Brackett,	1 00
Dana's Hovey, Mrs. Mary Langmaid,	4 00
Second, Edward J. Young,	3 00
Third, Charles H. Hovey,	2 00
Diel, Edwin A. Hall,	3 00
Second, A. S. McIntosh,	2 00
Third, Jesse Haley,	1 00
Goodale, O. B. Hadwen,	3 00
Hardy, Charles F. Curtis,	3 00
Second, Samuel Hartwell,	2 00
Third, A. S. McIntosh,	1 00
Howell, E. W. Wood,	3 00
Second, Warren Fenno,	2 00
Third, George Hill,	1 00
Lawrence, T. A. Dawson,	3 00
Second, Samuel Hartwell,	2 00
Third, C. N. Brackett,	1 00

Louise Bonne of Jersey, George Hill,	$3 00
Second, Benjamin G. Smith,	2 00
Third, Varnum Frost,	1 00
Marie Louise, Warren Fenno,	3 00
Second, A. S. McIntosh,	2 00
Third, Edwin A. Hall,	1 00
Merriam, Charles F. Curtis,	3 00
Second, Warren Heustis & Son,	2 00
Third, Warren Fenno,	1 00
Onondaga, O. B. Hadwen,	3 00
Second, C. H. Hovey,	2 00
Third, W. P. Walker,	1 00
Paradise of Autumn, L. M. Chase,	3 00
Second, Charles N. Brackett,	2 00
Third, Warren Fenno,	1 00
Seckel, T. M. Davis,	4 00
Second, W. C. Eustis,	3 00
Third, John L. Bird,	2 00
Sheldon, Charles F. Curtis,	4 00
Second, Cephas H. Brackett,	3 00
Third, Charles N. Brackett,	2 00
Souvenir du Congrès, Charles N. Brackett,	3 00
Second, Samuel Hartwell,	2 00
Third, J. T. Foster,	1 00
St. Michael Archangel, Warren Heustis & Son,	3 00
Second, W. C. Eustis,	2 00
Third, Jacob Eaton,	1 00
Superfin, Warren Heustis & Son,	3 00
Second, Warren Fenno,	2 00
Third, Michael Finegan,	1 00
Urbaniste, A. S. McIntosh,	3 00
Second, Warren Fenno,	2 00
Third, Jacob Eaton,	1 00
Vicar, Samuel Hartwell,	3 00
Second, Edwin A. Hall,	2 00
Third, Michael Finegan,	1 00
Winter Nelis, Edwin A. Hall,	3 00
Second, Jesse Haley,	2 00
Third, Warren Heustis & Son,	1 00
Any other variety, Edward B. Wilder, Lemuel Clapp,	3 00
Second, O. B. Hadwen, Frederick Clapp,	2 00
Third, Charles E. Brooks, Earle's Bergamot,	1 00
PEACHES.—Coolidge's Favorite, Charles S. Smith,	3 00
Crawford's Early, David L. Fiske,	3 00
Second, E. H. Luke,	2 00
Third, Mrs. Mary T. Goddard,	1 00
Foster, David L. Fiske,	3 00

Second, Samuel Hartwell,	$2 00
Third, Charles S. Smith,	1 00
Oldmixon, Charles S. Smith,	3 00
Second, N. D. Pierce, Jr.,	2 00
Stump the World, David L. Fiske,	3 00
Second, Charles S. Smith,	2 00
Third, N. D. Pierce, Jr.,	1 00
Any other variety, Samuel Hartwell, Crawford's Late,	3 00
Second, N. D. Harrington, " "	2 00
Third, David L. Fiske, Mountain Rose,	1 00
NECTARINES.—Warren Fenno,	2 00
PLUMS.—Not less than four varieties, Samuel Hartwell,	5 00
Second, Horace Eaton,	4 00
Third, B. G. Smith,	3 00
Any one variety, Mrs. Mary T. Goddard, Victoria,	3 00
Second, Samuel Hartwell, Imperial,	2 00
Third, Mrs. Mary T. Goddard, Blue Imperial,	1 00
NATIVE GRAPES.—Six bunches of Brighton, George V. Fletcher,	3 00
Second, C. C. Corby, New Jersey,	2 00
Concord, C. C. Corby,	3 00
Second, William Doran & Son,	2 00
Third, Cephas H. Brackett,	1 00
Cottage, C. C. Corby,	3 00
Second, B. G. Smith,	2 00
Delaware, Cephas H. Brackett,	3 00
Second, C. C. Corby,	2 00
Third, Samuel Hartwell,	1 00
Eumelan, C. C. Corby,	3 00
Second, B. G. Smith,	2 00
Massasoit, Cephas H. Brackett,	3 00
Second, C. C. Corby,	2 00
Moore's Early, Samuel Hartwell,	3 00
Second, George V. Fletcher,	2 00
Third, O. R. Robbins,	1 00
Niagara, C. C. Corby,	3 00
Second, O. R. Robbins,	2 00
Wilder, Cephas H. Brackett,	3 00
Second, C. C. Corby,	2 00
Worden, C. C. Corby,	3 00
Second, O. R. Robbins,	2 00
Third, Samuel Hartwell,	1 00
Any other variety, B. G. Smith, Lady,	3 00
Second, C. C. Corby, Herbert,	2 00
Third, C. C. Corby, Pocklington,	1 00
FOREIGN GRAPES.—Four varieties, two bunches each, David Allan,	10 00
The third prize to E. H. Luke,	6 00
Two bunches of Black Hamburg, David Allan,	5 00

Second, John Simpkins,	$4 00
Third, William J. Martin,	3 00
Wilmot's Hamburg, David Allan,	5 00
The Third Prize to E. H. Luke,	3 00
Muscat of Alexandria, David Allan,	5 00
Any other variety, David Allan, Alicante,	5 00
Second, John Simpkins, Syrian,	4 00
Third, E. H. Luke, White Frontignan,	3 00
CRANBERRIES.—Half-peck, Dwight C. Robbins,	3 00

Gratuities:—

Horace Eaton, Apples and Quinces,	2 00
C. N. Brackett, Apples and Pears,	2 00
F. R. Shattuck, Bartlett Pears from the original Bartlett Tree,	3 00
John B. Moore & Son, display of Eaton and Hayes Grapes,	Silver Medal

EXHIBITION OF AUTUMN FRUITS.

OCTOBER 1.

APPLES.—Gravenstein, Samuel Hartwell,	3 00
Second, William T. Hall,	2 00
Third, Levi Leach,	1 00
Holden, C. E. Grant,	3 00
Second, Samuel Hartwell,	2 00
Mother, O. B. Hadwen,	3 00
Second, Warren Fenno,	2 00
Porter, Samuel Hartwell,	3 00
Second, Charles S. Smith,	2 00
Any other variety, William Winn, Tompkins King,	3 00
Second, S. H. Coombs, Fameuse,	2 00
PEARS.—Angouleme, John McClure,	3 00
Second, Varnum Frost,	2 00
Third, Samuel G. Damon,	1 00
Bosc, John L. Bird,	3 00
Second, Mrs. Mary Langmaid,	2 00
Third, William S. Janvrin,	1 00
Clairgeau, William T. Hall,	3 00
Second, Mrs. Mary Langmaid,	2 00
Third, Warren Fenno,	1 00
Comice, Warren Fenno,	3 00
Second, Charles N. Brackett,	2 00
Third, William P. Walker,	1 00
Frederick Clapp, Horace Eaton,	3 00
Louise Bonne of Jersey, T. M. Davis,	3 00
Second, W. P. Walker,	2 00
Third, Benjamin G. Smith,	1 00

Seckel, S. G. Damon,	$3 00
Second, Leverett M. Chase,	2 00
Third, T. M. Davis,	1 00
Sheldon, Charles E. Wiggin,	3 00
Second, Charles F. Curtis,	2 00
Third, Cephas H. Brackett,	1 00
Superfin, S. G. Damon,	3 00
Second, A. S. McIntosh,	2 00
Third, George L. Lovett,	1 00
Urbaniste, L. M. Chase,	3 00
Second, B. G. Smith,	2 00
Third, S. G. Damon,	1 00
Any other variety, W. P. Walker, Hardy,	3 00
Second, Warren Fenno, Howell,	2 00
Third, George L. Lovett, Paradise of Autumn,	1 00
QUINCES.—Any variety, W. S. Janvrin,	2 00
Second, B. G. Smith,	1 00
PEACHES.—Any variety, Samuel Hartwell, Crawford's Late,	3 00
Second, Charles S. Smith, Stump the World,	2 00
Third, C. H. Johnson, Seedling,	1 00
NATIVE GRAPES.—Six bunches of Brighton, B. G. Smith,	3 00
Second, Joseph S. Chase,	2 00
Third, Samuel Hartwell,	1 00
Concord, Andrew J. Bigelow,	3 00
Second, William H. Hunt,	2 00
Third, Charles Garfield,	1 00
Delaware, Horace Eaton,	3 00
Second, B. G. Smith,	2 00
Third, S. G. Damon,	1 00
Iona, S. G. Damon,	3 00
Second, B. G. Smith,	2 00
Third, Horace Eaton,	1 00
Isabella, S. G. Damon,	3 00
Second, B. G. Smith,	2 00
Lindley, B. G. Smith,	3 00
Second, Albert M. Davenport,	2 00
Third, J. S. Chase,	1 00
Massasoit, J. S. Chase,	3 00
Second, Cephas H. Brackett,	2 00
Moore's Early, Samuel Hartwell,	3 00
Second, Charles Garfield,	2 00
Pocklington, George W. Jameson,	3 00
Second, Samuel Hartwell,	2 00
Third, J. S. Chase,	1 00
Prentiss, B. G. Smith,	3 00
Second, Samuel Hartwell,	2 00
Third, Joseph S. Chase,	1 00

Wilder, E. A. Adams,	$3 00
Second, Cephas H. Brackett,	2 00
Third, S. G. Damon,	1 00
Any other variety, Samuel Hartwell, Worden,	3 00
Second, J. H. Chase, Vergennes,	2 00
Third, Samuel Hartwell, Hayes,	1 00
Foreign Grapes.—Two bunches of any variety, William J. Martin, Black Hamburg,	4 00
Third, B. G. Smith, Black Hamburg,	2 00

CHRYSANTHEMUM SHOW.

November 9, 10, and 11.

Special Prizes for Apples, from the Benjamin V. French Fund.

Baldwin, W. S. Frost,	$5 00
Hubbardston, W. S. Frost,	5 00

Regular Prizes.

Apples.—Baldwin, O. B. Wyman,	3 00
Second, R. E. Warren,	2 00
Third, J. T. Foster,	1 00
Danvers Sweet, J. T. Foster,	3 00
Second, C. C. Shaw,	2 00
Hubbardston, C. C. Shaw,	3 00
Second, M. W. Chadbourne,	2 00
Third, W. S. Frost,	1 00
Hunt Russet, Starkes Whiton,	3 00
Second, Samuel Hartwell,	2 00
Third, W. H. Teel,	1 00
Lady's Sweet, O. B. Wyman,	3 00
Second, Warren Fenno,	2 00
Third, Mrs. W. S. Horner,	1 00
Northern Spy, C. C. Shaw,	3 00
Second, William T. Hall,	2 00
Third, Mrs. E. T. Burbank,	1 00
Rhode Island Greening, W. H. Teel,	3 00
Second, Charles N. Brackett,	2 00
Third, C. E. Grant,	1 00
Roxbury Russet, Cephas H. Brackett,	3 00
Second, Mrs. Mary T. Goddard,	2 00
Third, Mrs. W. S. Horner,	1 00
Tolman's Sweet, John Keough,	3 00
Second, T. Putnam Symonds,	2 00
Third, William Eames,	1 00
Tompkins King, William Winn,	3 00
Second, John Parker,	2 00
Third, George C. Rice,	1 00
Any other variety, George C. Rice, Peck's Pleasant,	3 00
Second, Samuel Hartwell. Gloria Mundi,	2 00

Third, William Eames, Newark Pippin,	$1 00
PEARS.—Angouleme, Mrs. A. H. Lewis,	4 00
Second, John McClure,	3 00
Third, Samuel G. Damon,	2 00
Fourth, Jesse Haley,	1 00
Anjou, William T. Hall,	4 00
Second, Mrs. Mary Langmaid,	3 00
Third, A. S. McIntosh,	2 00
Fourth, C. N. Brackett,	1 00
Clairgeau, William T. Hall,	3 00
Second, Warren Fenno,	2 00
Third, S. G. Damon,	1 00
Comice, Warren Fenno,	4 00
Second, Charles H. Hovey,	3 00
Third, Mrs. Mary Langmaid,	2 00
Fourth, Jesse M. Haley,	1 00
Dana's Hovey, Edward Richards,	4 00
Second, Mrs. Mary Langmaid,	3 00
Third, O. R. Robbins,	2 00
Fourth, Willard P. Plimpton,	1 00
Diel, Edwin A. Hall,	3 00
Second, William P. Walker,	2 00
Third, T. M. Davis,	1 00
Glout Morceau, Warren Fenno,	3 00
Second, Mrs. Mary Gardner,	2 00
Third, Edwin A. Hall,	1 00
Josephine of Malines, Warren Fenno,	3 00
Second, Benjamin G. Smith,	2 00
Third, John L. Bird,	1 00
Langelier, A. S. McIntosh,	3 00
Second, A. H. Lewis,	2 00
Third, E. J. Hewins,	1 00
Lawrence, William T. Hall,	3 00
Second, Andrew McDermott,	2 00
Third, Warren Fenno,	1 00
Vicar, Edwin A. Hall,	3 00
Second, William T. Hall,	2 00
Third, A. S. McIntosh,	1 00
Winter Nelis, Edwin A. Hall,	3 00
Second, A. McDermott,	2 00
Third, A. A. Johnson,	1 00
Any other variety, S. G. Damon, Marie Louise,	3 00
Second, C. B. Hagar, Bosc,	2 00
Third, Warren Fenno, Duchess of Bordeaux,	1 00
Gratuities:—	
M. W. Chadbourne, Pears,	1 00
Edwin A. Hall, Winter Nelis Pears,	1 00
O. M. Holmes, Cranberries,	2 00

REPORT

OF THE

COMMITTEE ON VEGETABLES,

FOR THE YEAR 1887.

By CHARLES N. BRACKETT, Chairman.

A review of the exhibitions made in this department from week to week during the season, brings prominently to view the interest manifested in the cultivation of the products of the earth, and the improvement in their character which is constantly being made. From the opening exhibition in January, to the closing one in November, we have seen samples of the choicest products of the vegetable garden, bountifully displayed on our tables. These displays have added to the interest of the exhibitions, have been much admired by visitors at our rooms, and would compare favorably with the best results of former years, both as regards quality and variety.

The past season has been fairly favorable for nearly all varieties of vegetables, if we except the potato. The early prospect for this crop was fine, and up to the month of August it never looked more promising. About this time, favored by the hot, wet weather of midsummer, the rot suddenly made its appearance in its worst form, causing immense losses in the aggregate, throughout a wide section of the country. It has not been an uncommon thing to hear from certain sections, of the entire destruction of the crop by this disease. Wherever the potato is grown the potato fungus is liable to make its appearance. There is no known remedy for the disease, and no special system of culture can be relied on to

prevent it. Heavy dews, rains, fogs, and excessive heat followed by excessive moisture, favor its development, while during seasons of protracted drought little is to be feared from its attacks. Many fungi, it is said, have a limited period of growth, or develop only at certain seasons of the year. If this is so, early planting may secure a crop against the ravages of a late growing fungus, while the attacks of an early fungus may be avoided by pursuing an opposite course. This theory was well illustrated the past season in the grounds of the writer. Where early planting was resorted to the crop was entirely free from disease, maturing before the atmospheric conditions favorable to the growth or development of the germs were present. From the experience of the past, early planting of such varieties as mature early is to be recommended, and promises the best results.

It is perhaps difficult to decide, with our present knowledge, whether deterioration and loss of vigor, occurring to a variety in course of cultivation, are owing to constitutional tendency, or are the result of faulty methods of cultivation. Certain it is, however, that many varieties of the potato, formerly famous and profitable, have disappeared from cultivation and have been supplanted by new-comers. Every year witnesses the introduction of many new varieties, most of which are no better, if as good, as already existing standard sorts. The old Jackson White, Carter, and the once unexcelled Chenango or Mercer, had to give way to such varieties as the Early Goodrich, Davis Seedling, and Gleason, which in their turn have disappeared to make room for the Early Rose, Hebron, Clark, and others, and if we are allowed to judge from the experience of the past, these favorites of the present day will before long have to yield their places to newer varieties fresh from the seed.

Each year brings out many new kinds of Peas, some of them old varieties under new names, while others are actual new sorts of great value, and it would be injudicious not to give them a fair trial, as we may reasonably expect that really meritorious varieties will arise, and should be substituted for inferior sorts. It may be considered a very poor year if our English friends on the other side of the water do not succeed in sending us at least a half dozen new varieties for trial. Among these new comers Laxton's Evolution, shown here for the first time by the Chairman, may be mentioned as one of the handsomest and best. It originated with

Thomas Laxton, of England, and is a cross between the celebrated Champion of England, and the large Blue Imperial. The vines grow from three to three and a half feet high, are immensely strong and stocky, and have a branching habit, bearing continuously pods of the largest size, each containing from eight to twelve large wrinkled peas which are unusually rich, tender, and fine flavored. The pods are from five to six inches in length, of a beautiful deep green color, and hang in clusters of two and three on the vine. Owing to their branching habit less seed is required to plant a row than of the common sorts, and a single sowing will continue to bear for ten or twelve weeks. In planting, the distance apart of the peas in a row should be not less than four inches. As a new variety this certainly promises to be particularly valuable for the kitchen garden, on account of the length of time it continues in bearing, as well as for its size and excellent quality. At the weekly exhibitions the leading varieties have been American Wonder, Stratagem, and Advancer, and these varieties have taken the prizes.

The weekly shows have been well attended, and the displays of the various vegetable productions during the entire season were especially noteworthy, both as regards their quantity and quality. Competition for the prizes has been more spirited than usual, and quite a number of new contributors have entered the lists during the year. Nearly all the prizes have been awarded.

Among the novelties introduced the past season we note as worthy of particular mention, Dreer's Early Golden Cluster Wax Pole bean, which, on account of its many good qualities, we feel assured has come to stay. It is distinct in habit of growth and in seed from the Giant Red Wax, and in earliness surpasses all other pole beans. The pods, which are of a rich golden yellow, retain their tender qualities long after the beans have acquired a large size, so that only a few days elapse, after they cease to be fit for string beans, before they may be used to shell. The pods are from six to eight inches long, of large size, and are borne profusely in large clusters of from three to six; each pod containing from six to eight medium sized beans somewhat resembling the Lima and equally good in quality as a shell bean. As a string bean it snaps easily, is stringless, cooks tender and is of delicate flavor. The beans, the past season, although not planted until the first of June, were large enough for use by the middle of July,

and continued in bearing until killed by frost. Should this new bean sustain the character with other cultivators which it has exhibited in the grounds of the Chairman, it will prove to be one of the most valuable of the many contributions which Mr. Dreer has made to horticulture, and may worthily bear his name.

The display made in this department at the Annual Exhibition was very full and complete, except as regards potatoes, which as before remarked, were generally a failure with most contributors on account of the rot. In these, therefore, there was not much competition, and the prizes were all taken by the few contributors who were so fortunate as to have good specimens in sufficient number to exhibit. Mrs. M. T. Goddard made the best display and carried off most of the prizes.

The exhibition of Squashes at the Annual Show was the best which has been made for several years. The new Hybrid Turbans are attaining a deserved place in the front rank, and hereafter will be recognized, as they should be, in our Schedule of Prizes. Some very fine specimens were shown by W. W. Rawson and others at this exhibition.

Cauliflowers have been more abundant than usual and the quality has been excellent. The specimens shown at the Annual and and November Exhibitions were highly creditable to the contributors. W. W. Rawson and A. M. Teel were respectively awarded the Special Prizes at the Annual Exhibition.

The first Tomatoes of out-door growth were shown July 9, by George Hill. As in previous seasons, there has been a large number of competitors for the prizes, and this vegetable has formed an interesting and attractive feature of our exhibitions. I. E. Coburn's exhibits both during the season and at the Annual Show, are entitled to special mention. A few so-called new varieties were shown, but there did not appear to be distinction enough between them and many well known sorts now in cultivation to require any special note at this time.

Decidedly the best specimens of Salsify ever shown before the Society, were placed on exhibition by Charles F. Curtis at our Annual Exhibition. For quite a number of years Mr. Curtis has taken the lead in the cultivation of this vegetable, but the exhibit which he made at that time excelled all former efforts in this direction.

The special prizes for Celery were awarded to W. W. Rawson

and C. A. Learned. In accordance with the requirements of the Schedule, persons competing for these prizes must renew their stands each day of the exhibition, and the prizes are to be awarded for the best specimens best kept during the four days, the award being made on the morning of the last day. In making their examination the Committee found that on the first two days C. A. Learned's stand was best, but on the following two days W. W. Rawson was first; and after diligent search, failing to discover a single point wherein one stand excelled the other, the Committee came to the conclusion that in this dilemma the fairest way to decide the matter was to make an equal division of the first and second prizes between the competitors, which was accordingly done.

Prizes and gratuities have been awarded during the year to sixty-five different contributors, and out of the appropriation made for this department an unexpended balance of twenty-four dollars remains to be returned to the treasury.

Annexed is a list of the awards in prizes and gratuities which have been made by your Committee during the year.

All of which is respectfully submitted.

Charles N. Brackett,
Warren Heustis,
Cephas H. Brackett,
George Hill,
P. G. Hanson,
Varnum Frost,
Jacob Hittinger.
} *Vegetable Committee.*

PRIZES AND GRATUITIES AWARDED FOR VEGETABLES.

January 1.

Radishes.—Four bunches of any variety, Hittinger Brothers,	$3 00
Second, George F. Stone,	2 00
Lettuce.—Four heads of Tennisball, Hittinger Brothers,	3 00
Second, George F. Stone,	2 00
Parsley.—Two quarts, George F. Stone,	3 00
Second, Hittinger Brothers,	2 00
Third, Warren Heustis & Son,	1 00
Mushrooms.—Twenty-four, Cephas H. Brackett,	3 00
Tomatoes.—Twelve, C. H. Brackett, for Optimus,	3 00
Second, " " " Emery,	2 00
Third, W. C. Winter, for Essex,	1 00

Gratuities:—

Warren Heustis & Son, Celery,	1 00
George F. Stone, Dandelions,	1 00

January 8.

Gratuities:—

C. H. Brackett, Asparagus,	1 00
W. W. Rawson, Radishes,	1 00

February 5.

Radishes.—Four bunches of any variety, George F. Stone,	3 00
Second, W. D. Philbrick,	2 00
Cucumbers.—Pair of any variety, Frederick C. Fisher,	3 00
Dandelions.—Peck, Frederick C. Fisher,	3 00
Second, George F. Stone,	2 00
Third, Warren Heustis & Son,	1 00
Lettuce.—Four heads of Tennisball, George F. Stone,	3 00
Mushrooms.—Twenty-four, C. H. Brackett,	3 00
Rhubarb.—Twelve stalks, Mrs. Francis B. Hayes,	3 00
Second, George E. Sanderson,	2 00
Third, C. H. Brackett,	1 00
Tomatoes.—Twelve, Charles Winter,	3 00
Second, W. C. Winter,	2 00
Third, C. H. Brackett,	1 00

Gratuities:—

Warren Heustis & Son, Celery,	$1 00
George F. Stone, Parsley,	1 00

FEBRUARY 12.

Gratuities:—

Mrs. Francis B. Hayes, Celery and Rhubarb,	2 00
Edwin Sheppard, Cucumbers,	1 00

MARCH 5.

Gratuity:—

Hittinger Brothers, Collection,	2 00

MARCH 12.

Gratuities:—

C. H. Brackett, Mushrooms and Asparagus,	2 00
George F. Stone, Lettuce,	1 00

SPRING EXHIBITION.

MARCH 23, 24, AND 25.

RADISHES.—Four bunches of Turnip Rooted, George E. Sanderson,	$3 00
Second, W. W. Rawson,	2 00
Third, W. Heustis & Son,	1 00
Four bunches of Long Scarlet, W. Heustis & Son,	3 00
ASPARAGUS.—Two bunches, twelve stalks in each, C. H. Brackett,	3 00
CUCUMBERS.—Pair of White Spine, Frederick C. Fisher,	3 00
Second, G. M. Kendall,	2 00
Third, James Heslan,	1 00
CELERY.—Four roots, John Coolidge,	3 00
Second, Warren Heustis & Son,	2 00
DANDELIONS.—Peck, George F. Stone,	3 00
Second, Frederick C. Fisher,	2 00
LETTUCE.—Four heads of Tennisball, C. H. Brackett,	3 00
Second, W. W. Rawson,	2 00
Third, Hittinger Brothers,	1 00
WATER-CRESS.—Two quarts, Mrs. Francis B. Hayes,	2 00
PARSLEY.—Two quarts, Hittinger Brothers,	2 00
Second, George F. Stone,	1 00
RHUBARB.—Twelve stalks, C. W. Winn,	3 00
Second, C. H. Brackett,	2 00
Third, George E. Sanderson,	1 00
TOMATOES.—Twelve, Charles Winter,	3 00

Gratuities:—

Edwin Sheppard, Cucumbers,	1 00

C. H. Brackett, Mushrooms,	$1 00
S. R. Payson, "	1 00
C. M. Hovey, "	1 00
William J. Martin, Lettuce,	1 00

April 9.

Asparagus.—Two bunches, twelve stalks in each, C. H. Brackett,	3 00
Cucumbers.—Pair of White Spine, C. H. Brackett,	3 00
Second, Frederick C. Fisher,	2 00
Mushrooms.—Twenty-four, C. H. Hovey,	3 00
Second, C. H. Brackett,	2 00
Gratuities:—	
G. F. Stone, Lettuce,	1 00
C. A. Learned, "	1 00

April 16.

Gratuities:—	
Mrs. Francis B. Hayes, Tomatoes,	1 00
Varnum Frost, Cucumbers,	1 00

April 23.

Gratuities:—	
Mrs. Francis B. Hayes, Collection,	2 00
James Heslan, Cucumbers,	1 00

May 7.

Asparagus.—Four bunches, twelve stalks each, John B. Moore & Son,	3 00
Cucumbers.—Pair, C. H. Brackett, Brighton,	3 00
Second, C. H. Brackett, New Variety,	2 00
Third, George Hill, White Spine,	1 00
Spinach.—Peck, George Hill, Round Leaf,	3 00
Second, Warren Heustis & Son, Oak Leaf,	2 00
Third, " " " Round Leaf,	1 00
Dandelions.—Peck, Warren Heustis & Son,	2 00
Second, George Hill,	1 00
Lettuce.—Four heads, George Hill,	3 00
Second, George F. Stone,	2 00
Rhubarb.—Twelve stalks, C. H. Brackett,	3 00
Second, M. W. Chadbourne,	2 00
Third, George Dorr,	1 00
Gratuities:—	
Mrs. Francis B. Hayes, Potatoes and Cress,	1 00
George Hill, Radishes,	1 00

MAY 14.

Gratuities:—

George Hill, Collection,	$2 00
Josiah Crosby, Egyptian Beets,	1 00
Samuel Hartwell, Asparagus,	1 00

MAY 21.

Gratuities:—

Charles D. Tuttle, Asparagus,	1 00
Josiah Crosby, Radishes,	1 00

MAY 28.

Gratuity:—

C. H. Brackett, Mushrooms and Cucumbers,	1 00

RHODODENDRON SHOW.

JUNE 4.

BEETS.—Twelve of any variety, C. H. Brackett,	$3 00
ASPARAGUS.—Four bunches, twelve stalks in each, John B. Moore & Son,	3 00
Second, L. W. Weston,	2 00
Third, C. D. Tuttle,	1 00
CUCUMBERS.—Pair, Edwin Sheppard, Telegraph,	3 00
Second, Varnum Frost, White Spine,	2 00
Third, C. H. Brackett, " "	1 00
LETTUCE.—Four heads, Varnum Frost,	3 00
Second, George Hill,	2 00
Third, Warren Heustis & Son,	1 00
RHUBARB.—Twelve stalks, C. H. Brackett,	3 00
Second, John B. Moore & Son,	2 00
Third, Mrs. Francis B. Hayes,	1 00
MUSHROOMS.—Twenty-four, C. H. Brackett,	3 00

Gratuities:—

Mrs. Francis B. Hayes, Potatoes,	1 00
Samuel Hartwell, Asparagus,	1 00

JUNE 11.

Gratuity:—

Josiah Crosby, Beets and Onions,	1 00

JUNE 18.

Gratuities:—

Samuel Hartwell, Peas,	1 00
C. E. Grant, "	1 00

ROSE EXHIBITION.

June 21 and 22.

Beets.—Twelve Summer Turnip Rooted, W. W. Rawson,	$3 00
Second, Warren Heustis & Son,	2 00
Third, W. W. Rawson,	1 00
Twelve Egyptian, W. W. Rawson,	3 00
Second, Josiah Crosby,	2 00
Third, C. A. Learned,	1 00
Onions.—Twelve, Josiah Crosby,	3 00
Second, C. A. Learned,	2 00
Cucumbers.—Pair of White Spine, C. H. Brackett,	3 00
Second, George F. Stone,	2 00
Third, W. W. Rawson,	1 00
Cabbages.—Three, W. W. Rawson, Etampes,	3 00
Second, C. A. Learned, Henderson's,	2 00
Third, W. W. Rawson, Express,	1 00
Lettuce.—Four heads of any variety, M. Earnest Moore,	3 00
Second, C. A. Learned,	2 00
Third, W. W. Rawson,	1 00
Peas.—Half-peck of any variety, W. Heustis & Son, American Wonder,	3 00
Second, Samuel Hartwell, American Wonder,	2 00
Third, C. N. Brackett, " "	1 00

Gratuities:—

William J. Martin, Cucumbers,	1 00
Parker & Wood, Maud S. Peas,	1 00
C. A. Learned, Collection,	5 00
Josiah Crosby, "	1 00
C. H. Brackett, "	1 00

June 28.

Gratuities:—

C. E. Grant, Peas,	4 00
Samuel Hartwell, Peas,	1 00
M. Earnest Moore, Lettuce and Cucumbers,	1 00
Warren Heustis & Son, Collection,	3 00
W. W. Rawson, "	3 00
C. A. Learned, "	2 00

July 2.

Onions.—Twelve, C. A. Learned,	2 00
Second, George Hill,	1 00
Squashes.—Four Long Warted, George Hill,	2 00

Second, Warren Heustis & Son,	$1 00
Four Scalloped, George Hill,	2 00
CABBAGES.—Three, George Hill,	3 00
Second, C. A. Learned, Henderson's,	2 00
Third, " " Wakefield,	1 00
PEAS.—Half-peck American Wonder, Warren Heustis & Son,	3 00
Second, C. N. Brackett,	2 00
Third, C. E. Grant,	1 00
Any other variety, C. N. Brackett, Stratagem,	3 00
Second, C. E. Grant, Advancer,	2 00
Third, C. N. Brackett, Telephone,	1 00

Gratuities:—

C. A. Learned, Collection,	3 00
E. A. Moore, Lettuce and Cucumbers,	1 00
C. H. Brackett, Wax Beans,	1 00

JULY 9.

POTATOES.—Twelve, C. N. Brackett, Clark,	3 00
Second, C. D. Tuttle, Hebron,	2 00
Third, C. H. Brackett, Clark,	1 00
BEANS.—Half-peck of String,	3 00
Second, Mrs. E. M. Gill,	2 00
PEAS.—Half-peck of any variety, I. E. Coburn, Stratagem,	3 00
Second, Samuel Hartwell, Stratagem,	2 00
Third, C. E. Grant, "	1 00

Gratuities:—

C. E. Grant, Sweet Corn,	1 00
C. N. Brackett, Peas and Potatoes,	1 00
G. N. Smith, Lee's Favorite Potatoes,	1 00
George Hill, Tomatoes,	1 00
C. H. Brackett, "	1 00

JULY 16.

BEANS.—Half-peck of Cranberry, C. N. Brackett,	$3 00
PEAS.—Half-peck of any variety, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Third, Warren Heustis & Son,	1 00
SWEET CORN.—Twelve ears, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Third, C. E. Grant,	1 00
TOMATOES.—Twelve, George Hill, Emery,	3 00
Second, C. N. Brackett, Acme,	2 00
Third, C. H. Brackett, Optimus,	1 00

Gratuities:—

C. N. Brackett, Potatoes and Beans,	$1 00
Warren Heustis & Son, Potatoes,	1 00
C. D. Tuttle, Collection,	2 00

JULY 23.

POTATOES.—Twelve, C. D. Tuttle,	3 00
Second, I. E. Coburn,	2 00
Third, C. N. Brackett,	1 00
SQUASHES.—Three Marrow, George Hill,	3 00
SWEET CORN.—Twelve ears, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Third, Josiah Crosby,	1 00
TOMATOES.—Twelve, Varnum Frost,	3 00
Second, C. N. Brackett,	2 00
Third, George Hill,	1 00

Gratuities:—

Josiah Crosby, Marrow Squashes,	2 00
Mrs. Francis B. Hayes, Lettuce,	1 00
Samuel Hartwell, Collection,	1 00
C. E. Grant, "	1 00

JULY 30.

POTATOES.—Twelve, I. E. Coburn,	3 00
Second, C. D. Tuttle,	2 00
Third, Warren Heustis & Son,	1 00
SQUASHES.—Three Marrow, Josiah Crosby,	3 00
PEAS.—Half-peck of any variety, Sidney Lawrence,	3 00
Second, C. E. Grant,	2 00
SWEET CORN.—Twelve ears, J. G. Coolidge,	3 00
Second, Samuel Hartwell,	2 00
Third, C. N. Brackett,	1 00
TOMATOES.—Twelve, I. E. Coburn,	3 00
Second, C. N. Brackett,	2 00
Third, Samuel Hartwell,	1 00

Gratuities:—

C. E. Grant, Collection,	2 00
C. N. Brackett, "	2 00

AUGUST 6.

GREENFLESH MELONS.—Four, E. S. Converse,	3 00
BEANS.—Half-peck of Horticultural, P. G. Hanson,	3 00
TOMATOES —Twelve Acme, C. N. Brackett,	3 00
Second, William J. Martin,	2 00
Third, Samuel Hartwell,	1 00

Emery.—I. E. Coburn,	$3 00
Second, C. N. Brackett,	2 00
Third, Samuel Hartwell,	1 00
Any other variety, I. E. Coburn, Favorite,	3 00
Second, I. E. Coburn, Puritan,	2 00
Third, J. G. Coolidge, Perfection,	1 00
Egg Plant.—Four Round Purple, J. G. Coolidge,	3 00
Second, George Hill,	2 00

Gratuities:—

Joseph S. Fay, Bird's Cantelope Melon,	2 00
J. G. Coolidge, Pekin Egg Plant,	1 00
John Fillebrown, Collection,	2 00
C. E. Grant, "	2 00
C. E. Tuttle, "	2 00
C. N. Brackett, "	2 00
Samuel Hartwell, "	1 00

August 13.

Greenflesh Melons.—Four, Warren Heustis & Son,	3 00
Second, Samuel Rodden,	2 00
Sweet Corn.—Twelve ears, J. G. Coolidge,	3 00
Second, C. E. Grant,	2 00
Third, C. N. Brackett,	1 00
Egg Plant.—Four Round Purple, J. G. Coolidge,	2 00
Second, Samuel Rodden,	1 00

Gratuities:—

John Fillebrown, Collection,	2 00
C. N. Brackett, "	2 00
C. E. Grant, "	2 00

August 20.

Potatoes.—Twelve of any variety, I. E. Coburn,	3 00
Second, C. B. Lancaster,	2 00
Third, C. N. Brackett,	1 00
Sweet Melons —Four of any variety, George Hill,	3 00
Second, Warren Heustis & Son,	2 00
Third, Samuel Hartwell,	1 00
Beans.—Two quarts of Large Lima, Benjamin G. Smith,	3 00
Second, C. N. Brackett,	2 00
Third, C. E. Grant,	1 00
Two quarts of Goddard, C. N. Brackett,	3 00
Peppers.—Twelve, C. N. Brackett, Squash,	3 00
Second, C. N. Brackett, Queen,	2 00
Third, C. Terry, Squash,	1 00

Gratuities:—

C. N. Brackett, Collection,	$2 00
C. E. Grant, "	2 00
Samuel Hartwell, "	1 00

AUGUST 27.

GREENFLESH MELONS.—Four, Samuel Hartwell,	3 00
PEPPERS.—Twelve, C. N. Brackett, Squash,	3 00
Second, C. N. Brackett, Queen,	2 00
Third, Josiah Crosby,	1 00
SWEET CORN.—Twelve ears, Mrs. Mary T. Goddard,	3 00
Second, C. N. Brackett,	2 00
Third, C. E. Grant,	1 00

Gratuities:—

L. W. Weston, Sweet Corn,	1 00
C. N. Brackett, Collection,	2 00
C. E. Grant, "	1 00
Samuel Hartwell, "	1 00
M. W. Chadbourne, "	1 00
John Fillebrown, "	1 00

SEPTEMBER 3.

CABBAGES.—Three of any variety, C. N. Brackett,	3 00
Second, O. R. Robbins,	2 00
CELERY.—Four roots, C. A. Learned,	3 00
Second, H. T. Reynolds, Henderson's,	2 00
Third, " " White Plume,	1 00
BEANS.—Two quarts of Large Lima, Benjamin G. Smith,	3 00
Second, C. N. Brackett,	2 00
Third, C. E. Grant,	1 00
PEPPERS.—Twelve, C. N. Brackett, Squash,	3 00
Second, C. N. Brackett, Queen,	2 00
Third, C. Terry,	1 00

Gratuities:—

Samuel Hartwell, Collection,	2 00
C. E. Grant, "	2 00
C. N. Brackett, "	2 00

ANNUAL EXHIBITION.

SEPTEMBER 13, 14, 15, AND 16.

Special Prizes.

CAULIFLOWERS.—W. W. Rawson,	6 00
Second, A. M. Teel,	4 00

CELERY.—Four roots, C. A. Learned,	$7 50
Second, W. W. Rawson,	7 50

Regular Prizes.

BEETS.—Twelve Turnip Rooted, W. W. Rawson,	3 00
Second, J. G. Coolidge,	2 00
Third, George F. Stone,	1 00
CARROTS.—Twelve Intermediate, W. W. Rawson,	3 00
Second, Mrs. Mary T. Goddard,	2 00
Third, John Fillebrown,	1 00
PARSNIPS.—Twelve Long, W. W. Rawson,	3 00
Second, C. A. Learned,	2 00
POTATOES.—Four varieties, twelve specimens of each, Mrs. M. T. Goddard,	5 00
Second, H. B. Watts,	4 00
Third, Joseph Brierly,	3 00
Twelve Clark, Mrs. M. T. Goddard,	3 00
Second, C. B. Lancaster,	2 00
Third, M. B. Faxon,	1 00
Hebron, H. B. Watts,	3 00
Second, Mrs M. T. Goddard,	2 00
Third, C. B. Lancaster,	1 00
Rose, C. B. Lancaster,	3 00
Second, C. D. Tuttle,	2 00
Third, M. B. Faxon,	1 00
Savoy, Mrs. M. T. Goddard,	3 00
Second, C. B. Lancaster,	2 00
Third, M. B. Faxon,	1 00
Any other variety, Mrs. M. T. Goddard, White Star,	3 00
Second, " " " Charles Downing,	2 00
Third, " " " Peach Blow,	1 00
SALSIFY.—Twelve roots, C. F. Curtis,	3 00
Second, M. W. Chadbourne,	2 00
Third, Benjamin G. Smith,	1 00
TURNIPS.—Twelve Flat, George F. Stone,	3 00
Twelve Swedish, R. A. Lovering,	3 00
ONIONS.—Twelve Danvers, George Hill,	3 00
Second, J. J. H. Gregory,	2 00
Third, C. A. Learned,	1 00
Portugal, George Hill,	3 00
Red, J. J. H. Gregory,	3 00
Second, George Hill,	2 00
GREENFLESH MELONS.—Four, G. E. Sanderson,	3 00
Second, Samuel Hartwell,	2 00
Third, Warren Heustis & Son,	1 00
WATERMELONS.—Pair, C. E. Grant,	3 00
Second, C. N. Brackett,	2 00

Third, Samuel Hartwell,	$1 00
SQUASHES —Four Canada, Mrs. M. T. Goddard,	3 00
Second, Josiah Pratt,	2 00
Third, George Hill,	1 00
Hubbard, W. W. Rawson,	3 00
Second, George Hill,	2 00
Third, John Fillebrown,	1 00
Marblehead, P. G. Hanson,	3 00
Second, R. A. Lovering,	2 00
Third, George Hill,	1 00
Marrow, P. G. Hanson,	3 00
Second, W. W. Rawson,	2 00
Third, R. A. Lovering,	1 00
Turban, P. G. Hanson,	3 00
Second, L. P. Weston,	2 00
Third, R. A. Lovering,	1 00
CABBAGES.—Three Drumhead, C. B. Lancaster,	3 00
Second, C. N. Brackett,	2 00
Third, Samuel Hartwell,	1 00
Red, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Savoy, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Third, C. B. Lancaster,	1 00
CAULIFLOWERS.—Four, A. M. Teel,	3 00
Second, W. W. Rawson,	2 00
Third, L. W. Weston,	1 00
CELERY.—Four roots of Boston Market, C. A. Learned,	5 00
Second, W. W. Rawson,	4 00
Third, Josiah Crosby,	3 00
Any other variety, C. A. Learned, Arlington,	5 00
Second, W. W. Rawson, Arlington,	4 00
Third, Joseph Brierly, White Plume,	3 00
HORSERADISH.—Six roots, W. W. Rawson,	3 00
Second, C. A. Learned,	2 00
Third, John Fillebrown,	1 00
BEANS.—Two quarts of Large Lima, C. N. Brackett,	3 00
Second, Benjamin G. Smith,	2 00
Third, C. E. Grant,	1 00
CORN.—Twelve ears of Sweet, O. R. Robbins,	3 00
Second, George W. Jameson,	2 00
Third, C. E. Grant,	1 00
Yellow or Field, twenty-five ears, traced, Mrs. M. T. Goddard,	3 00
EGG PLANTS.—Four Round Purple, J. G. Coolidge,	3 00
Second, George Hill,	2 00
Third, C. A. Learned,	1 00
TOMATOES.—Three varieties, twelve each, I. E. Coburn,	5 00

Second, C. N. Brackett,	$4 00
Third, George Hill,	3 00
Twelve Acme, C. N. Brackett,	3 00
Second, Joseph Brierly,	2 00
Third, J. G. Coolidge,	1 00
Emery, I. E. Coburn,	3 00
Second, George Hill,	2 00
Third, C. N. Brackett,	1 00
Paragon, George E. Sanderson,	3 00
Second, George F. Stone,	2 00
Third, George Hill,	1 00
Cardinal, C. N. Brackett,	3 00
Second, George F. Stone,	2 00
Third, George Hill,	1 00
Any other variety, I. E. Coburn, Favorite,	3 00
Second, R. A. Lovering, Livingston,	2 00
Third, George E. Sanderson, Livingston,	1 00
MARTYNIAS.—Twenty-four, M. W. Chadbourne,	2 00
PEPPERS.—Twenty-four, C. N. Brackett, Squash,	3 00
Second, " " Queen,	2 00
Third, " " Ruby King,	1 00

Gratuities:—

W. W. Rawson, Collection,	8 00
Oak Grove Farm, "	5 00
C. A. Learned, "	4 00
John Fillebrown, "	3 00
Samuel Hartwell, "	3 00
C. N. Brackett, "	3 00
C. E. Grant, "	2 00
P. G. Hanson, " of Squashes,	3 00
W. W. Rawson, Hybrid Squashes,	1 00
George Hill, Squashes,	2 00
J. G. Coolidge, "	2 00
William Richardson, "	1 00
M. W. Chadbourne, "	1 00
F. D. Barker, "	1 00
J. J. H. Gregory, Collection of Beans,	3 00
C. Terry, Watermelons,	2 00
C. H. Brackett, Mushrooms,	1 00

OCTOBER 1.

SALSIFY.—Twelve roots, Charles F. Curtis,	3 00
Second, Benjamin G. Smith,	2 00
Third, M. W. Chadbourne,	1 00
SQUASHES.—Three Hubbard, W. W. Rawson,	3 00
Second, Samuel Hartwell,	2 00

Marrow.—W. W. Rawson,	$3 00
Cabbages.—Three Drumhead, C. N. Brackett,	3 00
Second, Samuel Hartwell,	2 00
Third, C. B. Lancaster,	1 00
Three Red, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Three Savoy, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Third, C. B. Lancaster,	1 00
Cauliflowers.—Four, W. H. Teel,	4 00
Second, A. M. Knowlton,	3 00
Third, Samuel Hartwell,	2 00
Celery.—Four roots Boston Market, W. W. Rawson,	4 00
Second, Josiah Crosby,	3 00
Any other variety, W. W. Rawson, Arlington,	4 00
Second, C. A. Learned, Arlington.	3 00
Third, Mrs. Francis B. Hayes, White Plume,	2 00

Gratuities:—

C. A. Learned, Horseradish,	1 00
M. W. Chadbourne, Sweet Corn,	1 00
Mrs. E. M. Gill, Beans,	1 00
Benjamin G. Smith, Lima Beans,	1 00
I. E. Coburn, Collection of Tomatoes,	2 00
C. N. Brackett, Collection,	4 00
C. E. Grant, "	2 00
Samuel Hartwell, "	2 00

CHRYSANTHEMUM SHOW.

November 9, 10, and 11

Onions.—Twelve Danvers, W. H. Teel,	$3 00
Second, P. G. Hanson,	2 00
Third, R. A. Lovering,	1 00
Cucumbers.—Pair, C. H. Brackett, Brighton,	3 00
Second, " " New Variety,	2 00
Third, " " White Spine,	1 00
Cabbages.—Three Red, C. N. Brackett,	3 00
Second, Samuel Hartwell,	2 00
Savoy, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Brussels Sprouts.—Half-peck, Mrs. M. T. Goddard,	3 00
Second, Charles F. Curtis,	2 00
Cauliflowers.—Four, A. M. Knowlton,	3 00
Second, W. H. Teel,	2 00
Third, George E. Sanderson,	1 00

CELERY.—Four roots, W. W. Rawson, Arlington,	$3 00
Second, C. A. Learned, Arlington,	2 00
Third, W. W. Rawson, Boston Market,	1 00
ENDIVE.—Four heads, M. W. Chadbourne,	3 00

Gratuities:—

W. W. Rawson, Lettuce and Horseradish,	2 00
George F. Stone, Lettuce,	1 00
A. S. McIntosh, Artichokes,	1 00
Mrs M. T. Goddard, Celery,	1 00
R. A. Lovering, Collection,	5 00
P. G. Hanson, "	5 00
Samuel Hartwell, "	1 00

NOVEMBER 26.

Gratuity:—

W. W. Rawson, Lettuce,	1 00

REPORT

OF THE

COMMITTEE ON GARDENS,

FOR THE YEAR 1887.

By JOHN G. BARKER, Chairman.

It again becomes our duty to present a report of our doings for the past season. The only application for any of the premiums was from Warren Heustis & Son, who entered their Market Strawberry Garden, which your Committee, with other invited guests, visited June 25. This garden was three-fourths of an acre in size, half an acre being old beds worked over, and the other one-fourth of an acre being new ground. The leading variety was the Belmont. The season was unusually short, the latter part being very hot, so as to bring it to a close quite suddenly, and Mr. Heustis estimates on that account a loss of at least 1000 baskets. As it was there were sold 3687 baskets, and what was used in the family and given away would add at least 300 more, making a total of 3987 baskets, or in round numbers 4000 baskets. Those sold brought a very satisfactory price. Mr. Heustis considers the past season not a good one for any kind of fruit, and says that strawberries suffered as much as any fruit, and that theirs were never poorer.

On page 346, Part II, of our Transactions for 1886, will be found a report on Mr. Heustis's grounds, especially on the strawberries, and our visit this season fully sustains what was then said. For the last three years Mr. Heustis has grown scarcely any other kind than the Belmont. Last year 3000 Jewells were planted, and there are but few more than that number now, as they have made scarcely any runners, but what they did make are looking

well. There were also planted some Cumberland, Jersey Queen, and Bay State, this last named, a seedling, raised by Mr. Heustis; but of this he does not feel justified in saying much at present. There were many other seedlings from the Jewell and Belmont, none of which have yet fruited enough for one to form any opinion of their merits, but another season may prove what they are. Mr. Heustis says that in raising seedling strawberries if he gets one good one out of two hundred he thinks that well worth trying for, and the Committee believe that in the future he will place upon our tables the proofs of his success as he has done in the past.

In addition to strawberry culture, Mr. Heustis, as is well known to most of us, has given attention to the cultivation of the Rose. The collection contains about 800 plants of the leading Hybrid Perpetual varieties, which have been planted from one to eight years. They are in beds 200 feet long by 12 feet wide, the rows running across the beds, each row being of a different variety. In most cases five of each have been planted, but in some, more than that number, the selection being from the best known kinds in cultivation. Those which were planted eight years ago were never more vigorous than at the present time. The plants were all budded and undoubtedly most of them have rooted above the bud, adding greatly to the strength of the plant. The fine display of flowers was ample proof of the high state of cultivation bestowed upon them, and greatly increased the pleasure of our visit.

The Committee award to Messrs. Heustis the First Prize of $30 for the best Market Strawberry Garden.

Wellesley, the Residence of H. H. Hunnewell.

Although not invited in an official capacity, your Committee enjoyed the pleasure of a visit, with other gentlemen, to this charming estate when the Rhododendrons and Azaleas were in their greatest glory. To prepare a detailed description of this elegant estate is a task not easily performed. The great progress made from year to year and the added beauty of the place as the trees and shrubs advance in size must be seen to be appreciated. The Rhododendrons form one of the greatest attractions of the place, and the interest Mr. Hunnewell has taken in their culture is a sufficient guarantee that the collection is one of the choicest, if not the very best on this side of the Atlantic. In

the various groups there are thousands of plants among which are many single specimens measuring fully ten feet in diameter. Their beauty can only be appreciated by seeing them; indeed, those who have never seen them can hardly imagine the gorgeous effect produced by the massing of these immense banks of flowers, and no description can do them justice. In color we see the pale blush, shaded purple, rosy crimson, pink, bright rose, delicate pale rose, deep crimson, deep scarlet, pinkish lilac, white, shaded lilac, carmine, — in fact nearly every conceivable color from a pure white to a deep, rich crimson. Of half hardy kinds, — that is, those that are housed in winter, there are about two hundred named varieties, both standards and dwarfs, a few of which are ten feet high and as much in diameter. These large plants require four men to lift them, so that the labor of moving them twice a year is very great, and spacious pits are required to store them in during the winter. Mr. Harris informed us that he makes a point of thoroughly soaking the roots of every tree before it is housed, and after all are planted in the pits they are well watered again, and get no more water until set in the open ground in April.

The rhododendron tent contains 9672 square feet and is 25 feet high at the apex. It is neatly and tastefully laid out in beds and borders, and in the centre is a spiral staircase with a platform at the top ten or fifteen feet from the ground, where a fine view of all the plants is obtained, giving an effect produced in no other way than by looking down on the plants. The splendid standard specimens which were so very attractive and admired by every one, were:

Onslowianum, a delicate waxy blush, with a yellow eye; very distinct.

Barclayanum, deep rosy crimson; a fine late blooming kind.

Scipio, rose, with a fine deep spot.

W. E. Gladstone, pink, fine truss.

Purity, white, with a faint yellow eye; very showy.

Mrs. Arthur Hunnewell, pink, with primrose centre; very pleasing.

Sir Joseph Whitworth, rich dark lake, spotted.

Duchess of Edinburgh, bright orange scarlet; very effective.

In a letter to the Chairman of the Committee, Mr. David Smith of the Old Scotch Rose Nurseries, Stranraer, Scotland, says: "I called on Mr. Harris at Wellesley, and saw the large collection of rhododendrons, which is quite equal to any private collection I

have seen at home, where the facilities for growing them are greater."

We found a great variety of climbers growing on the posts supporting the tent; several kinds of clematis were particularly noticeable and showy, and added much to the attractiveness of the tent.

Hardy Azaleas receive a large share of attention. Their beauty during the early spring season is greater than can be imagined. The profuseness of the blossoms and the brilliancy of their color, with not unfrequently a delicate and agreeable fragrance, give them qualifications of great importance for more general cultivation. Of all the hardy flowering shrubs where can be found such a variety of color — pink of almost every shade, scarlet, yellow, orange, and white? Many of the specimens at Wellesley were splendid large plants, showing a mass of bloom and each forming an exhibition of itself. In this connection we must not fail to mention the *Azalea mollis*, a recent introduction from Japan, the flowers of which are very large, and vary in color from primrose to red. They are very attractive and beautiful, profuse bloomers, and are so highly prized for their forcing qualities that it would be hardly possible to say too much in their favor.

The Azalea tent was a very attractive feature; it is of circular form and seventy-five feet in diameter. Here we saw some of the most magnificent specimens of Indian Azaleas ever known. Some of the plants are twenty-five years old and six or seven feet through, and the collection contains the best known varieties. New ones have been added from time to time until it now contains about one hundred varieties. In the centre of this tent fine specimens of palms were arranged, plunged in the grass, as were also the Azaleas, the latter being arranged in groups around the sides. Intermingled with the Indian Azaleas were some plants of *Azalea mollis* with yellow flowers of a very striking appearance, which enlivened the groups very much. As in the rhododendron tent a variety of climbing plants grew on the pillars. It would be an endless task to attempt any detailed account of the different plants in this collection, but it is not too much to say that the display is unequalled on this side of the Atlantic, as the thousands who every year come from far and near can testify.

It will be interesting to many to know how the plants are treated. We enjoyed a visit to Wellesley the early part of December and

found these plants stored in a pit about sixty feet square under the stable. In the same pit were Ivies, Araucarias, *Rhynchospermum jasminoides*, and the more tender varieties of Rhododendrons, such as Dalhousianum, Sesterianum, Gibsoni, Princess Alice, Mrs. J. Shaw, and others. These with the Azaleas are removed from the pit to the fruit houses about the 20th of April, and when in bloom removed to the tent. While in the pit only enough heat is given to prevent dampness, and the watering is carefully looked after about once a week.

The Italian garden is the most striking feature in the grounds. In the eighth edition of Downing's "Landscape Gardening," enlarged and revised by Henry Winthrop Sargent, Esq., at page 444, is an account of this garden, in which we are informed that it is the most successful, if not the only one, as yet, in the country. The description is illustrated by a plate, showing the balustrade with the steps leading down to the garden, and many fine specimens of topiary work, with a view of the lake beyond; and as we imagine the fine buildings of Wellesley College located on the other side of the lake, a scene of unequalled beauty is before us. The trees used for the topiary work comprise White Pines 35 feet high trimmed in tiers, others umbrella shaped, and many fine Norway Spruces 12 feet high in a variety of forms, and some perfect specimens 25 feet high. The European Larch is also quite a feature, yielding to the knife as readily as evergreens, and when starting into growth is very beautiful. Hemlocks, Arborvitæs, Junipers, and Retinosporas, with a few deciduous trees such as Beeches, Birches, Maples, etc., make up the whole. The number of trees under the shears is 260. There are also two large clumps of *Retinospora pisifera aurea* containing 50 plants each, trimmed so as to make a compact mass 10 feet in width, and two circular beds each with Purple Birch in the centre, and a carpet underneath 8 feet wide of *Euonymus radicans variegata* clipped close; also a bed of Arborvitæ in the centre, with Euonymus 7 feet across, and a mass of Hemlock with Purple Beech in the centre 10 feet high. The effect of this is very beautiful.

The great bank of Hemlocks 200 feet in length and 12 feet in width was originally planted in two rows about three feet apart, in order to form a dense mass. This has been accomplished to perfection, and at equal distances cones were raised and time has developed them so that they are now nearly ten feet above the

base. There are ten of these. While one can perhaps get some idea of the beauty of the garden from this report, no description can do it justice. It is the same with this as with the other features already described, — to be appreciated they must be seen.

Perhaps you have all noticed the extensive lawn and admired its breadth and seemingly perfect order; but Mr. Hunnewell, being pleased with nothing but the best, two years ago trenched the entire lawn, covering a space of nearly eight acres, about eighteen inches deep, at a large expense, and it is anticipated that another year a beautiful sward, with a fine, smooth surface, will be the result.

The Pinetum is now attracting a great deal of attention, and much interest is manifested in the elegant specimens there found. In the Report of the Garden Committee for 1874 the height of some of the rarest specimens was given, and, in order that some idea may be formed of the advance in the size of the trees, we here repeat that table with the addition of the present height:

	1874.	1887.
Abies Albertiana,	10 feet.	15 feet.
" *Douglasii*,	8 "	25 "
" *orientalis*,	20 "	25 "
Larix Kœmpferi,	8 "	25 "
" *leptolepis*,	25 "	50 "
Picea Cephalonica,	20 "	35 "
" *grandis*,	11 "	18 "
" *lasiocarpa*,	6 "	15 "
" *Nordmanniana*,	20 "	30 "
" *Pichta*,	25 "	30 "
Pinus Koraiensis,	10 "	18 "
" *Massoniana*,	10 "	18 "
Retinospora filifera,	4 " 6 in.	12 "
" *obtusa*,	13 "	20 "
" " *aurea*,	6 "	8 "
" *pisifera*,	8 "	14 "
" " *aurea*,	9 " 6 in.	15 "
" *plumosa*,	7 "	12 '
Thuja pendula,	9 "	14 "
Thujopsis dolabrata,	4 "	7 "

Our attention was directed to a splendid specimen of *Abies pungens*, 18 feet high, which is probably the finest in the New England States. It is of great beauty, and its light blue foliage, compact habit, and hardy character make it invaluable.

Abies Douglasii, now 25 feet high, was grown from seed on the place. Like the Norway Spruce, it varies in form, some specimens growing erect while the others are of a drooping habit.

Picea (*Abies*) *Cephalonica* is 35 feet high. This beautiful fir is a native of Mount Enos, the highest mountain of Cephalonia. Its foliage is dark green, unique looking, standing out like miniature bayonets.

Abies Parsonsi is 20 feet in height.

Abies concolor, Veitch's variety, which is more glaucous than *A. pungens*, and by many is thought to be decidedly handsomer, is described by Engelmann as forming a tall tree on the mountains in New Mexico, and somewhat resembles *A. grandis* in foliage.

Having thus taken a glance at the grounds, we will call attention to some of the plants seen in the houses. You all know that December is a poor month to look for much beauty in a greenhouse, but we found much to interest us. The first plant that attracted attention on entering was a splendid specimen of *Lœlia albida*. The flowers were very large; the sepals and petals are pure white with a fine pink lip; and this superb specimen was grown in a basket two feet by one foot six inches. It is a beautiful winter blooming orchid.

Cypripedium insigne Maulii is a variety of *insigne* in which the upper petals are whiter and the whole flower appears better in color than the type.

Cypripedium Spicerianum, a beautiful species of the group to which *C. insigne* belongs, may be found figured in the Botanical Magazine, Vol. 106, plate 6490.

Cypripedium Dominianum is a cross between *C. caricinum* and *C. caudatum;* spike three flowered; petals greenish yellow, very long; lip purple, green, and yellow. This is a welcome addition to this interesting class of orchids.

Cypripedium Harrisonii. — This splendid variety is a cross between *C. villosum* and *C. barbatum*, combining all the good qualities of both, and is considered one of the very best.

Dendrobium Dearei. — One of the features of this charming Dendrobe is the fact that it lasts so long a time in bloom. Mr.

Harris says it will stay in bloom for ten weeks. The Dendrobes are all very beautiful, and there are in the collection 400 or 500 plants in twenty or thirty varieties.

Calanthe Veitchii is one of the most beautiful of deciduous orchids. There were many fine specimens, and one in particular is worthy of mention, having six spikes of bloom, each spike averaging thirty flowers, which are of a deep rose color.

Calanthe lutea oculata is a very pretty variety.

Phalænopsis grandiflora and *P. amabilis.* The latter has been called the "Queen of Orchids." *P. Schilleriana* is a magnificent species. These plants were in perfect health. The foliage itself is really beautiful, especially that of *Schilleriana.* The flowers are all very handsome, and continue a long time in perfection, which quality makes them of more than ordinary value.

Of Cattleyas, about 500 plants are grown in twenty or thirty varieties. The most noticeable are *Mossiæ*, and its varieties, *amethystoglossa*, *crispa*, *Trianæ*, and *Warnerii.* Cattleyas are justly ranked amongst the finest orchids. The flowers are large and elegant, and scarcely surpassed by any genus in brilliant richness and great depth of color, and those who visited Wellesley last spring undoubtedly remember the beautiful display in the conservatory.

Three fine specimens of *Cœlogyne cristata* have attracted our attention more than once; these are grown in pans twenty inches in diameter. This is a magnificent dwarf evergreen species, the flowers being produced from the bottom of the bulb, on a drooping spike, six or eight together. The color is pure white, with a blotch of yellow on the lip.

There are also about 500 plants of Odontoglossum. We have mentioned only a few of the larger specimens that attracted our notice. There are many hundred plants of the choicest varieties, selected with the greatest care, and all in the very best state of cultivation.

Foliage plants have always received a large share of attention, and the fine displays made at our exhibitions are well remembered by you all. Particularly attractive were the Dracænas. These handsome plants are deservedly very popular. Some can be used to advantage in the sub-tropical garden, and as house plants they are much to be desired; but for greenhouse and stove decoration we never saw any that equalled the superb specimens grown at

Wellesley. In addition to the finest named varieties, there were seedlings raised by Mr. Harris, than which there were none better. Particularly noticeable were superb specimens of Wellesleyana, Bella and Waban.

The Crotons were in splendid condition, and growing in the same house with the Dracænas. The combination displayed a richness of foliage unequalled in any other arrangement of fine foliage plants. The following were among the very best: *Evansianus*, *Williamsii*, *Johannis*, and *Queen Victoria*.

Sphærogyne latifolia was another elegant foliage plant, described by B. S. Williams as follows: "The stem and leaf stalks of this magnificent species are clothed with rough, light brown, reversed hairs. The leaves are opposite, a foot or more in length, ovate, and of a beautiful, rich, dark, olive-green in color on the upper surface, the under side being dull red. No collection of ornamental plants should lack this superb and elegant species. It is a native of Costa Rica."

Marantas were also noticed in splendid order. Their beautiful variegated foliage makes them well adapted for ornamental and decorative purposes in the stove and conservatory.

Tree Ferns. An elegant specimen of *Cyathea dealbata*, with some of the fronds eight feet long and in splendid condition, was much admired.

Cibotium regale was another elegant specimen, the fronds spreading twenty feet. The graceful habit and distinct appearance of tree ferns render them singularly beautiful and peculiarly adapted for conservatory and other decorative purposes.

Palms. *Areca lutescens* was a very beautiful specimen.

Areca Verschaffeltii.

Kentia Fosteriana.

Licuala Guadichaudii.

Phœnix reclinata is an elegant greenhouse palm.

Phœnix rupicola is said to be the most beautiful species of the whole genus.

Stevensonia Sechellarum.

Sabal umbraculifera was very fine, with fronds seven feet in diameter.

It would be difficult to find any class of plants better adapted for all kinds of decorative work than the palms. The dinner table, the window, the staircase, the church, the conservatory, the

lawn, the shady nook, and the flower garden, all seem to give them a welcome, and they always add grace and beauty to whatever place they occupy. The elegant specimens seen here verify this statement.

We noticed several fine specimen plants of Opuntias ten feet high, and also a variegated form. These large plants were, last summer, in the centre of an ornamental bed.

In one of the houses we were delighted at the sight of an old friend, *Bignonia venusta*, a magnificent specimen of which had on it scores of streamers of flowers four or five feet long. This plant was grown in a border not more than three feet by two, and the stem of the plant at the base was at least eight inches through. In pruning, it is cut, very much like a grape vine, to two eyes, in the month of May, and lasts fully six weeks in bloom.

On the opposite side of the house was another superb greenhouse climber, which follows the Bignonia in flowering,—the *Bougainvillea spectabilis*. When growing, Mr. Harris says, you cannot give it too much water, but the roots must be kept within bounds. This also is pruned after flowering, the same as a grape vine. These splendid greenhouse climbers should have a place wherever one can be given them.

In one of the storage pits were fifty elegant specimen plants of Holly, also Portugal Laurels, Yews, Euonymus, *Cryptomeria Japonica*, etc. We were informed that no harm would come to these plants if the mercury fell ten degrees below the freezing point, but cold winds must be kept out. There are three Rhododendron pits, eighty feet long by sixteen wide, in which 700 or 800 plants are stored.

In the rear of the Peach house a new house has been built. This is a cool house, and here were Orange plants, Acacias, Euonymus, *Lapageria rosea*, *L. alba*, and scores of other plants adapted to cool house culture.

The cool orchids are in a part of this house, being separated by a glass partition. These houses are constructed unlike most greenhouses, nothing being used that can rot. The walks and benches are all made of cement, the benches being supported by iron standards at the edges of the walks, with flat pieces attached to them at regular intervals, and running to the wall; this is all the support that is needed. To make these benches, a broad framework is made and placed where the under side of the bench will be, and cement of the desired thickness is laid on this framework, which remains three or four days that the cement may

thoroughly harden. This makes complete benches which no amount of dampness can affect. In the cool orchid house a cement tank, three and a half feet wide and five or six inches deep, runs the entire length of the front bench. This is kept filled with water, and is so arranged that it can easily be drained off, and fresh water can be supplied whenever needed. Everything is thoroughly done, and glass and iron in the roof, and cement walls, benches, and walks form a clean, substantial house.

There are in all thirteen houses, besides many outside pits and frames devoted to the various uses required for the successful carrying on of this beautiful and well managed place. We must not forget to mention that the crop of peaches and nectarines in the long ranges of glass (300 feet by 16) were as usual very fine and of superb quality.

Much might properly be added to this brief glimpse of Mr. Hunnewell's beautiful estate. The superbly arranged flower garden, admired by all, unique and beautiful of itself, deserves more than a brief mention, and perhaps we may be enabled to make special note of it another season. It is only justice to say that the entire place was in the best possible condition, and all that skill and art could do was here shown. To give a detailed description of the perfect beauty of the whole requires more ability, time, and space than your Chairman can command. We can do no less, however, than to extend to Mr. Hunnewell our hearty thanks for the kind reception we all enjoyed, and for his unbounded liberality in throwing open to the public his elegant grounds, the beneficial influence of which on the thousands who every year enjoy their beauty cannot be estimated. Our thanks are also due and heartily extended to Mr. Harris, who is always ready to give any information at his command, and to whom we are indebted for the facts, so freely given, which help to make up this report. We take pleasure in adding a letter from Mr. Hunnewell, which we are sure will be read with great interest by all.

Approved by the Committee, January 7, 1888.

John G. Barker,
J. H. Woodford,
E. W. Wood,
C. N. Brackett,
Charles W. Ross,
Benjamin G. Smith,
Henry W. Wilson,
} *Garden Committee.*

Mr. Hunnewell's Letter.

Wellesley, November 27, 1887.

Mr. John G. Barker:

Dear Sir:

With special reference to our conifers, to the cultivation of which I have for many years given a good deal of attention, I hope my experience may be of some practical benefit to the public. It may possibly induce them to plant more of this class of ornamental trees, and an inspection of my collection may enable them to do so without the trouble and expense of testing the many different varieties, some of which I have found are not hardy in our severe climate. We have in our Pinetum, besides those scattered about in different parts of the place, over one hundred specimens of choice and rare evergreens, collected from all parts of the world, which have been planted from ten to twenty-five years, and a sufficient distance apart to allow the trees to grow and develop to full size without crowding each other. Most of them are now so large that they can be seen to the best advantage, and an idea can be obtained of the special characteristics of each variety. I have intended to give them good cultivation, and they are in a very healthy condition, but most of them were planted on what would be called a very poor gravelly soil, and though I have of late years improved its character essentially, still it is not, even now, of first quality, or the trees would show a much greater growth.

There is of course great uncertainty attending the introduction of foreign trees, but I have found that this question of hardiness ought not to be decided hastily, for I have frequently despaired of success, but have persevered, and after several importations have been finally rewarded with most satisfactory results.

Our trees have now been planted so many years, and have thriven so admirably, that there can surely be no doubt that with ordinary care they are perfectly hardy, and well adapted to our severe and trying climate; and any one who takes an interest in the matter can satisfy himself on this point by a personal inspection of our trees.

The *Picea Nordmanniana* is seen occasionally in this neighborhood, and we have a dozen or more fine specimens, thirty feet high, on the place. It comes from the Crimean mountains, and is

certainly a very beautiful tree, attaining, it is said, a height of one hundred feet, and will no doubt soon be more generally planted in this country.

I think favorably of the Japanese Retinosporas, which are charming trees, especially for moderate sized places, as they do not grow to a great height. The Spruces and Pines are likewise very desirable, being perfectly hardy and well adapted to our climate.

Abies polita, *A. brachyphylla*, and *A. Alcoquiana* are great acquisitions, especially the last, which is a grand tree and looks as if it would hold its beauty to a great age. The Umbrella Pine and *Pinus Koraiensis* must be great favorites and largely planted before many years, the latter retaining its foliage three years, a great advantage over our White Pine.

Truly yours,

H. H. HUNNEWELL.

REPORT

OF THE

COMMITTEE OF ARRANGEMENTS FOR 1887.

The reports of the Chairmen of the various Committees of the Society, anticipate so much that might be said by this Committee, and cover the work of the Society for the past year so thoroughly, that there remains little to be said, which will prove of value to the records. The receipts from the large exhibitions of the year 1887, have fallen off in a slight degree from the total of 1886, although the Chrysanthemum Show this year made a slightly better showing as to receipts than in 1886. In detail the receipts were as follows: Spring Exhibition, $1,213.55; Rose Show, $306.55; Annual Exhibition, $1,023.00; Chrysanthemum Show, $734.75. Total, $3,277.85, against the sum of $3,646.10 last year.

The experiment of holding the Annual Exhibition in the Mechanics' Building on the Back Bay, in conjunction with the Exhibition of the American Pomological Society, was, so far as the financial results are concerned, not as suceessful as it ought to have been, and it served to demonstrate in part at least, that the Society is fortunate in the present location of its building, which is easy of access to those who wish to attend our exhibitions. It would seem to be the future policy of the Society, to stimulate the improvement of the quality of all exhibits rather than to seek to enlarge the quantity of individual exhibits. The limited space at our command, renders this an imperative consideration, and our exhibitions will assuredly prove not only more attractive, but instructive and beneficial to horticultural interests, if this line of policy is adopted.

EDWARD L. BEARD,
Chairman Committee of Arrangements.

REPORT

OF THE

COMMITTEE ON THE MEETING

OF THE

AMERICAN POMOLOGICAL SOCIETY.

The Committee appointed to receive and to provide for the American Pomological Society at its Twenty-first Session, in Boston, in September last, make the following report:

Working in harmony with your Standing Committee of Arrangements, provision was made so that the exhibitions of the Pomological Society and also its sessions should be held in the Mechanics' Building in connection with the Annual Exhibition of this Society.

A goodly number of eminent horticulturists and scientific gentlemen from all parts of the country and from the Dominion of Canada were in attendance, and the papers which were read and the discussions which followed were of decided interest. The wide experience and thoughtful observation of such an intelligent body of observers when thus brought to a focus, must prove to be of great value. The volume of "Proceedings" of this Society will be essential to every horticulturist who wishes to be abreast of the discussions in the various departments of our art. Your Committee take the liberty to urge upon the members of our Horticultural Society that they also become members of the National Society, and thus not only entitle themselves to its publications, but contribute to the support of a most worthy and widely useful Society.

The exhibition of Fruits by the Pomological Society was more limited than was anticipated, owing to the comparative failure of the fruit crop at the West. Yet it was of interest and afforded points of comparison with our own products which were certainly

encouraging. Special mention should be made of the many seedling grapes, some of which were of decided interest, and also of the remarkable collection of 165 varieties by the T. S. Hubbard Company, of Fredonia, N. Y., undoubtedly the largest number of varieties ever brought together in this and perhaps in any country. This was a rare opportunity for identification and the comparison of merit. One gentleman from the West expressed himself as amply repaid for his journey by this one exhibit of grapes.

By the courtesy of the City of Boston, an excursion down the harbor and a visit to the Public Institutions were enjoyed by the Convention. Through the liberality of several members of our Society, a banquet was given to the members of the Pomological Society at the close of its session, which was largely attended by the members of both Societies. Hearty expressions of union and good cheer were given by our President and other distinguished speakers, and the session closed with a prevalent feeling that the bond of fraternal union had been strengthened.

WILLIAM C. STRONG,
BENJAMIN G. SMITH, } *Committee.*
GEORGE W. FOWLE,

REPORT

OF THE

COMMITTEE ON WINDOW GARDENING,

FOR THE YEAR 1887.

By Mrs. H. L. T. WOLCOTT, Chairman.

The Committee on Window Gardening, in submitting the list of prizes awarded, desire to state that the success of the last year was most encouraging. Parents and teachers became conscious of new interests in homes through this simple organization.

The unavoidable necessity of detaining young children from their homes for so long a part of the day, in bringing their plants to the hall, and returning with them, became objectionable before the end of the season.

After some delay, and in order to overcome other difficulties, halls have been obtained through the coöperation of others (Mr. Nathaniel J. Bradlee, the Church of the Good Shepherd, and the North End Industrial School). By this means we hope to enlist cordial sympathy in the aims and work of the Committee, and eventually to secure sectional Committees, who will take charge of the various exhibitions, reporting always to the Committee on Window Gardening, at Horticultural Hall, Tremont Street, Boston.

H. L. T. Wolcott, *Chairman*,
E. M. Gill,
L. P. Weston,
S. W. Story,
M. B. Faxon, *Secretary*,
} *Committee.*

PRIZES AND GRATUITIES AWARDED FOR WINDOW GARDENING.

June 4.

Gratuities:—

Alexander Phillips, Geranium,	$ .15
Vera Gray, "	.15
Esther Lee, "	.10
Samuel Wellington, "	.10
Grace Witkins, "	.10
Sarah Witkins, "	.10
Florence Phillips, "	.10
Percy Phillips, "	.10
Ethel C. Brown, Fuchsia,	.30
Mary Laffry, "	.20
Annie Gray, "	.15
Callie Gray, "	.15
Thomas H. White, "	.10
Mary Dowd, "	.10
Maggie Phillips, "	.10
Minnie Witkins, Heliotrope,	.05
Nellie Moriarty, "	.05
Everett Brooks, "	.05
Jennie Murphy, German Ivy,	.10
Mary Moriarty, English Ivy,	.05
Annie Moriarty, " "	.05
Abbie F. Brown, Fern,	.15

July 2.

Rose.—Single plant in pot, the Second Prize to John Henrickson,	.50
Fuchsia.—Single plant in pot, the Second Prize to Mary Degnan,	.50

Gratuities:—

Thomas Dowd, Rose,	.25
Ethel O. Brown, Geranium,	.10
Sadie Foster, "	.10
Vera Gray, "	.10
Freddie Benway, "	.10
Clara Wellington, "	.10
Percy Phillips, "	.05
Josephine Mullen, "	.05
A. Phillips, "	.05

F. B. Phillips, Geranium,	$ .05
P. J. Degnan, "	.05
Abbie F. Brown, Fuchsia,	.10
Annie Gray, "	.10
Callie Gray, "	.10
M. Phillips, "	.10
Julia Henrickson, "	.05
Mary Dowd, "	.05
A. F. Brown, "	.05
Ethel C. Brown, "	.05
Ethel C. Brown, Heliotrope,	.10
Lizzie Dowd, "	.05
Abbie F. Brown, Oxalis,	.10
Annie Moriarty, English Ivy,	.10
Mary Moriarty, " "	.10
Abbie F. Brown, Tradescantia,	.10
" " Box of Mignonette,	.10
Ethel C. Brown, " Sweet Alyssum,	.10

JULY 9.

NATIVE FLOWERS.—Collection of Native Cut Flowers, Walter E. Coburn,	1.25
The Third Prize to Walter E. Coburn,	.75

AUGUST 6.

HELIOTROPE.—Single plant, the Second Prize to Mary Goodman,	.50

Gratuities:—

Thomas Dowd, Rose,	.10
Michael Graham, Geranium,	.20
Freddie Benway, "	.20
Sadie Foster, "	.20
Mary O'Hearn, "	.10
Jennie Murphy, "	.10
Maggie Kelly, "	.10
Maria Kelly, "	.10
Arthur Westerbury, Fuchsia,	.15
Mary Dowd, "	.15
Annie Moriarty, English Ivy,	.20
Mary Moriarty, " "	.15
Lizzie Kelly, " "	.10
Edward Reynolds, " "	.10
Eddie Westerbury, Heliotrope,	.20
Lizzie Dowd, "	.10
Mary Ann Garrity, "	.10
J. Reynolds, "	.10

September 3.

Gratuities:—

Annie Anderson,	Geranium,	$ .20
Freddie Benway,	"	.20
Grace Witkins,	"	.20
Daniel Riordan,	"	.15
Joseph Haggerty,	"	.15
Lillie Witkins,	"	.15
Thomas Dowd,	"	.15
Lizzie Dowd,	"	.15
Maggie Kelly,	"	.15
Maria Kelly,	"	.15
Thomas White,	Fuchsia,	.20
Mary Dowd,	"	.15
Isabella Wood,	German Ivy,	.20
Julia Riordan,	English Ivy,	.15
Peter Haggerty,	" "	.20
Mary Moriarty,	" "	.20
Annie Moriarty,	" "	.20
Lizzie Kelly,	" "	.15
Bertha Pryor,	" "	.15
Mary Riordan,	Heliotrope,	.15

September 10.

Rose.—Single plant in pot, the Second Prize to Marguerite R. Harriman,	.50
Geranium.—Single plant in pot, a Second Prize to Louisa Feyertag,	.50
Second Prize to Anna M. Severance,	.50
" " Josie Speigel,	.50
" " Sarah Wilkins,	.50
Third Prize to Emma Peterson,	.25
" " John Stevens,	.25
" " Bertha M. Pryor,	.25
" " Peter Haggerty,	.25
" " Gertie Gunther,	.25
" " Josephine Severance,	.25
" " Sadie Foster,	.25
Heliotrope.—Single plant in pot, the First Prize to Mary Goodwin,	.75
Third Prize to Nannie Feyertag,	.25
Fuchsia.—Single plant in pot, William Garren,	.75
Second, Mamie Cotter,	.50
Third, Annie Curley,	.25

Gratuities:—

John E. Henrickson,	Rose,	.15
Anselino Bianchi,	"	.10
Lillian B. Sportsman,	"	.05

Freddie Benway,	Geranium,	$ .25
Mary Dolan,	"	.20
Annie Anderson,	"	.20
Josie Rorke,	"	.20
Joseph Haggerty,	"	.15
George Bloom,	"	.15
Minnie Feyertag,	"	.15
Maggie Keniley,	"	.15
Patrick J. Degnan,	"	.15
Annie Denks,	"	.15
Grace Wilkins,	"	.15
James Roach,	"	.15
Julia Lanborguini,	"	.15
Laura Randolph,	"	.15
Mary Dowd,	"	.15
Lizzie Dowd,	"	.15
Thomas Dowd,	"	.15
Mary Garren,	"	.15
Daniel Riordan,	"	.10
Lino Gregori,	"	.10
Adele Gregori,	"	.10
Joseph Bianchi,	"	.10
Maria Kelly,	"	.10
Stanley Ward,	Heliotrope,	.25
Tony Favello,	"	.25
Joseph O. Severance,	"	.20
Mabel Gunther,	"	.15
Alice Keniley,	"	.15
Mary V. Cisco,	"	.15
Elio Gregori,	"	.10
Diago Bianchi,	"	.10
Thomas White,	Fuchsia,	.25
Arthur Westerbury,	"	.15
John Sullivan,	"	.15
Julia Henrickson,	"	.10
Mary Degnan,	"	.10
John Bianchi,	"	.10
Emma Gregori,	"	.10
Mary Riordan,	"	.10
Nellie Bloom,	German Ivy,	.20
Eliza Gregori,	" "	.10
Lillian B. Sportsman,	Marigold,	.25
Mary Severance,	English Ivy,	.25
John Shanahan,	" "	.25
Mary Gunther,	" "	.20
Charles Tarello,	" "	.20
Helen Lane,	" "	.20

Peter Haggerty,	English Ivy,	$ .15
Madaline McHallan,	" "	.15
Ida Feyertag,	" "	.15
Leopold Maurer,	" "	.15
Bertha M. Pryor,	" "	.15
Edith Denks,	" "	.15
Ethel A. Cisco,	" "	.15
Raymond O. Delancy,	" "	.15
George Wentworth,	" "	.15
Annie Moriarty,	" "	.15
Mary Moriarty,	" "	.15
Lizzie Kelly,	" "	.15
Julia Riordan,	" "	.10
Emilio Gregori,	" "	.10
Eva Sportsman,	" "	.10
Grace Sportsman,	" "	.10
Joseph Wentworth,	" "	.10
Julia Lanborguini,	" "	.10
Grace Sportsman,	Nasturtiums,	.10
Eva Sportsman,	"	.10
Sadie Sportsman,	"	.05

REPORTS

TO THE

STATE BOARD OF AGRICULTURE.

Beginning with the year 1885 the Society has elected a member of the State Board of Agriculture, and has performed such other acts as were necessary to entitle it to the bounty of the State, and the Board has appointed a member to report on the exhibitions and other work of the Society. It having been suggested that the report for the year 1887 should be printed in the Transactions of the Society, the Committee on Publication have not only approved that suggestion, but have determined to publish also the two previous reports, as follows:

REPORT FOR 1885.

By Hon. JAMES S. GRINNELL, of Greenfield.

I was appointed from this Board to report on the Massachusetts Horticultural Society, and have attended its shows of fruits, flowers, and vegetables, and some of its weekly meetings, most interesting in the display of practical results, and in the exposition of scientific theories and of experimental work.

The fact that this Society had never until last year, when under the presidency of Mr. John B. Moore, allied itself with the State Board of Agriculture, and has never before been represented here by a delegate or by a report, justifies me in giving for the information of those who are not of its membership, a brief sketch of its origin and early history. The first production from the soil which our forefathers found when they landed on the cheerless shore of Massachusetts Bay, except the leafless forest trees of December, was some seed of that noble plant, the maize, which not only saved their lives, but which in all succeeding generations

of their descendants for more than two hundred and sixty years has been a prime factor of their sustenance and of their prosperity.

The following spring and summer, however, developed to their delighted gaze and to their longing appetites an abundance of grapes, white and black, strawberries, gooseberries, raspberries, and many others; plums, nuts, and a profusion of roses; but the apple, the pear, and the peach, were not indigenous to this country, and the civilized hand had not stretched across the wide Atlantic to sow their seeds. They found the soil, where the Indians had cleared by burning and with their clam-shell hoes and their fish for fertilizer had grown their corn, their beans and their pumpkins, fertile and responsive to whatever was done for it. The colonists were rather slow in introducing fruit trees, and it was not till after 1640 that these were propagated to any merchantable extent.

Gov. Endicott was apparently one of the first to make this any considerable business; his farm was known by the name of "Orchard." In 1645 he wrote his son that he had engaged to sell fifteen hundred apple trees; and in 1648 he exchanged five hundred apple trees with William Trask for two hundred and fifty acres of land.

An indication of the interest early shown in horticulture is the act of 1646, imposing penalties for robbing an orchard or garden, or injuring any graft or fruit tree.

The general cultivation of fruit increased slowly, though in 1654, thirty-four years after the first settlement, Gov. Bradford, in a rather rough poem, wrote — "Pears, apples, cherries, plums, quince, and peach, are now no dainties, you may have of each." But early in 1700, apples and also pears and peaches are spoken of by Chief Justice Dudley as abundant. Apples were especially so, for in one village near Boston, of only forty families, they made three thousand barrels of cider in 1721, and in another town of four hundred families, he says, "they made ten thousand barrels, some apple trees making as many as six and seven barrels of cider; but this is not common, though from seven to nine bushels of apples will yield a barrel of cider." Nearly another century passed before any associated action was taken here to promote horticulture, or the propagation and cultivation of fine fruits, although in the milder and more genial climate, south of New York, at Philadelphia, and below that, much had been done.

In 1822 Hon. John Lowell wrote that "We are utterly destitute in New England of nurseries for fruit trees on an extensive scale; we have no cultivators on whom we can call for a supply of the most common plants of the smaller fruits, such as strawberries, gooseberries, and raspberries of the superior kinds. We have no place to which we can go for plants to ornament our grounds. We have not a single seedsman who can furnish us with fresh annual seeds on which we can depend and place a reliance." He added: "Shall it be said that from June to September, in our scorching summers, a traveller may traverse Massachusetts from Boston to Albany, and not be able to procure a plate of fruit except wild strawberries, blackberries, and huckleberries, unless from the hospitality of some private gentleman."

In accomplishing the wondrous change wrought in the sixty years and more since that time; in the increase and the perfection of fruits and flowers, no factor so potent as the Massachusetts Horticultural Society has existed and acted. The Massachusetts Society for Promoting Agriculture, having as its founders and first members several of the most prominent and far-seeing men, and some among them the most wealthy, in the Commonwealth, was incorporated in 1792, and by its corporate action, the efforts of its individual members, and by the publication of the "Massachusetts Agricultural Repository," which from the first contained articles devoted to Horticulture, accomplished a vast deal in shaping sentiment, and preparing the way for the formation and incorporation of the Horticultural Society.

A few books and journals on horticulture had been published; horticultural societies had been incorporated in New York and in Philadelphia. Kenrick, Winship, and Manning—honored names—had established in or near Boston, nurseries which became quite extensive; the time had come, and prominent men in Boston interested in the subject, for general good, determined on some definite action, and their ideas finally crystallized and took form by the incorporation in 1829, of the Massachusetts Horticultural Society "for the purpose of encouraging and improving the science and practice of horticulture, and promoting the amelioration of the various species of trees, plants, and vegetables, and the introduction of new species and varieties," and with the right to purchase and hold real estate.

For several years preceding this, the unwisdom of interring the

dead beneath the churches, and in the church-yards attached, had been a matter of thought and anxiety among many of Boston's wise and careful men, and although attempts had been repeatedly made to secure a tract of land, large enough, varied enough in character, and near enough to Boston, suitable for a rural cemetery, none which met these requirements, and which could be purchased, had up to this time been found. Boston had been incorporated as a city but seven years previous to the organization of this society; from 1630 to 1822 she had gloried in the pride of her Puritan government; of selectmen managing the affairs of the town, as directed by the people in that most Democratic of all Governments under heaven, the "Town Meeting." But since that, in 1829, she had wonderfully increased her population from forty to sixty thousand, and her valuation from eighty millions to eight times that. The territory was limited, and there was a very general and spontaneous feeling that intramural sepulture must be stopped.

About a year after the incorporation of this Society, a suitable tract of land, sixty acres in extent, was found lying in the towns of Cambridge and Watertown, and as the Society wanted land for an experimental garden, it was thought wise by its leading members, and those most active in the cemetery project, that the whole should be bought and placed in charge of the Society, which should reserve and use what was necessary for a garden, thus securing the most intelligent care of the grounds, and giving an added beauty to the cemetery.

The land was bought by a subscription of those who thereby constituted themselves as members, and in the spring of 1831, the Legislature authorized the Massachusetts Horticultural Society in addition to the powers already conferred on it, "to dedicate and appropriate any part of the real estate, now owned or hereafter to be acquired by them as and for a rural cemetery or burying ground, and for the erection of tombs, cenotaphs, or other monuments for and in memory of the dead;" and on the 24th of September following it was dedicated with proper and imposing ceremonies.

Thus it is that to the Massachusetts Horticultural Society, we owe the selection, purchase, and consecration of Mount Auburn, this lovely rural cemetery, in location, character, natural and artificial beauty unequalled in this country.

Had the Massachusetts Horticultural Society never accomplished anything but this, it would stand pre-eminent in its work, and its name would rise to heaven as a sweet incense of hallowed memories to the thousands who have in these many years laid beneath that consecrated sod all that was mortal of those they had loved and lost. In subsequent years a Cemetery Association was incorporated which took the management of the grounds, while the Society continues to receive annually a liberal sum from the proceeds of the sales of lots.

The Society has gone on with unvarying success. It owns the handsome granite building where all its exhibitions are held, which it built in 1865, and has also a large income, a great part of which is expended in premiums.

This building, however, is not large enough for the Society's increasing requirements, and it is highly probable that before another century opens it will be in the occupancy of much larger and more elegant rooms in a more commodious part of the city.

The Society holds weekly meetings every Saturday during the winter months, at which is usually read an essay, either by some one of the very competent members or by some scientist invited from abroad. Following this is a discussion on the subject of the lecture, full of interest and instruction, as is also the animated talk that arises on an infinity of subjects among an assemblage of experts in the special matters that are constantly called up by curious, or by superior specimens of cultivation.

There is nowhere in this part of the country such a source of horticultural and arboricultural knowledge and information as springs from these weekly meetings in the Society's rooms, and I should suppose that any person in Boston or its vicinity who has any interest in fruits and flowers, or, I should more properly say, their production and cultivation, would, if admittable, join this Society and attend its meetings.

The Society has also during the year, four most interesting public shows for the display of fruits, flowers, and vegetables. Some of these cannot be equalled in any city of the United States. The premiums offered for all these articles are on a most liberal scale, amounting annually to over five thousand dollars.

The Spring Exhibition is in March, when are largely shown greenhouse and pot plants, with such fruits and vegetables as may then be in season.

Late in June is held the Rose and Strawberry Exhibition, where is such a magnificent display as well justifies the title of Queen of Flowers to the rose, and also intensifies our faith in the opinion of old Dr. Butler, who, according to Izaak Walton, said that "doubtless God could have made a better berry than the strawberry, but doubtless God never did."

The Annual Exhibition in September is a very grand show of hot-house plants, flowers in pots, cut flowers, and bouquets, fruits of all kinds, and vegetables perfect in their varieties and in their forms. These, as a collection of object lessons in the school of horticulture, should be visited and studied by every one who has or can make the opportunity.

The fourth great exhibition occurs in November, especially for the exposition of that very popular flower, the Chrysanthemum, of which there were hundreds of every variety and known hue. Splendid specimens of apples, pears, and vegetables were also exhibited.

There are also prize exhibitions of fruits, flowers, and vegetables, every Saturday in July, August, and September, until the Annual Exhibition.

These frequent meetings and exhibitions develop to the full all the skill and energy of these growers about Boston. They criticise each other's operations,—approve and adopt, or reject,—they communicate each to the other their modes of cultivation—or if one does not, and only shows results — the others set themselves to find the secret of his success, and to surpass it.

Every one strives to excel in whatever he undertakes. He has to, to live. They make their living by the most careful, intelligent, skilled labor in their profession.

If farmers were so situated as to have such gatherings, the character of much of their farming operations would change greatly to their profit. The splendor of these shows is greatly enhanced by the free-handed liberality of wealthy gentlemen living not only in Boston, but in some cases miles away, who willingly send by wagons and by cars the most costly and splendid productions and ornaments of their greenhouses, often at no small hazard and loss. Nor should those skilled and painstaking gentlemen who produce and care for these rare and gorgeous plants be passed without a most honorable mention.

The influence of this Society has been extended and far reaching

beyond that of any similar association in this country. It has been largely instrumental in surrounding Boston with elegant gardens and pleasure grounds, surpassing the suburbs of any American city. It has stimulated the growth, introduction, and refined cultivation of the choicest and most useful trees, plants, flowers, and vegetables, and has accomplished more than any other agency in improving the markets, not only of Boston, but of all Massachusetts and New England. Its library, the most complete in this country if not in the world, as a specialty, is a perennial mine of agricultural learning.

Its publications have exerted a most wide-spread influence in the cultivation throughout the country of the best and most useful of all things growing out of the earth for our health and our enjoyment. Its members and correspondence extend throughout all refined countries, even to China and far Japan.

As citizens of Massachusetts we may well be proud of such an institution. As farmers and cultivators of the soil we should appreciate the benefits we have received from it, directly and indirectly. As members of this board we are happy in seeing it represented among us.

REPORT FOR 1886.

By JAMES P. LYNDE, M. D., of Athol.

The report of the Hon. James S. Grinnell upon the Horticultural Society last year was so comprehensive and exhaustive, covering its history, methods, work, and financial standing, that it is only left for me to review the past year's transactions and consider their influence upon progressive agriculture.

The sum appropriated for premiums was over $6,000, distributed through four exhibitions held in March, June, September, and November, covering a period of from two to four days each, to which an admission fee was charged, and thirteen weekly prize exhibitions from May 8, to October 2, open from 12 to 3 o'clock, on Saturdays, which were free to the public.

Thirteen meetings for Essays and Discussions, free to all interested, were held during the winter and spring, at which the following topics were considered.

Jan. 16. A Trip to the Tropics, by Joseph H. Woodford, Newton.

Fruits that Promise Well, by E. W. Wood, West Newton.

Jan. 23. The Forest Interests of Massachusetts, by William C. Strong, Newton Highlands.

Jan. 30. Forestry, by Rev. J. B. Harrison, Franklin Falls, N. H.

Feb. 6. The Gladiolus, by William E. Endicott, Canton.

Feb. 13. Bulbs and Tubers for Out-door Culture, by Mrs. T. L. Nelson, Worcester.

Feb. 20. The Food Question, by Edward Atkinson, Boston.

Feb. 27. Vegetable Growing, by Warren W. Rawson, Arlington.

March 6. The Progress of Orchid Culture in America, by Edward L. Beard, Cambridge.

March 13. Homestead Landscapes, by Dr. G. Austin Bowen, Woodstock, Conn.

March 20. The Care and Embellishment of Cemeteries, by John G. Barker, Jamaica Plain.

March 27. Nitrogen: Why the Crops Must Have it and Where They Must Get it, by Professor C. G. Caldwell, Ithaca, N. Y.

April 3. The Nomenclature of Fruits.

April 10. The Ripening and Preservation of Fruits, by Hon. Marshall P. Wilder, Dorchester.

This is a brief outline of the year's work. The essays and discussions are embodied in the Society's publications, and are of great value. Vegetables, fruits, and flowers are the specialties that receive attention.

The four principal exhibitions are held in the two large halls in the Society's building in Boston,— fruits and vegetables in the lower, and flowers and plants in the upper hall. At these exhibitions the display of flowers and plants completely filled the upper hall, presenting a scene of enchanting beauty, especially in the evening under the mellow radiance of the electric light. The weekly shows are held in the lower hall.

Who can describe a rose,— the queen of flowers,— an orchid, a chrysanthemum, a rainbow, a glorious sunset, or the glittering sapphires and rubies, painted by a morning sunbeam in a drop of dew? The pen of another must record the beauty and perfume of these floral collections. Every specimen was an object lesson

in itself, many of them of great value and of absorbing interest to all beholders. The mystic goddesses of horticulture, Pomona and Flora, held high court, displayed their rich treasures, and received the homage of their votaries.

We have stood before the statue of one we have known, honored, and loved; so faithfully had the artist wrought, that the cold insensate marble seemed instinct with life, and to our imagination the inarticulate lip and sightless eye would almost seem to move in recognition of our presence.

We have looked upon a picture of the great Nazarene, painted by the hand of an old master with such perfection that the countenance seemed so illumined with an expression of grace, pity, and love that we could almost feel the influence of His personal presence, and we have looked and turned away, only to return spellbound with tender admiration.

Who has not felt the mysterious influences and been moved in the profound depth of consciousness by the "divine art" of Mozart, Handel, and Beethoven? What an inspiration to deeds of heroic self-sacrifice for real or supposed good! And what a source of comfort, pleasure, and happiness to mankind, holding its power through the ages over all races of men!

Can we not properly claim a place as a companion of high art for skilled Horticulture, which, directing the forces of nature, evolves from the lifeless clod objects of utility and beauty, crowned with blessings and delights far excelling in perfection works of sculpture and painting, speaking to human hearts through a silent language as suggestive and uplifting in influence and culture as the finest music? Therefore is she not entitled to at least honorable mention and high rank among the so-called Fine Arts?

"Your voiceless lips, O flowers, are living preachers,
Each cup a pulpit, every leaf a book,
Supplying to my fancy numerous teachers
From loneliest nook.

"Were I in churchless solitudes remaining
Far from all voice of teachers and divines,
My soul would find in flowers of God's ordaining
Priests, sermons, shrines."

—Horace Smith.

The work and influence of this Society is a constant public benefaction, by the introduction of new and improved varieties of vegetables, fruits, and flowers, and illustrating the best methods of their cultivation, stimulating the ambition of people to improve and excel in these specialties. Some one has said that no person could eat of our choicest grapes, apples, and pears without being indebted to the genius of Marshall P. Wilder.

The influence of the Society is not confined to this or the New England States. Its members and patrons are, many of them, the most successful cultivators of gardens, fruits, and flowers in this country or the world; and wherever horticultural societies have been organized in this or other countries, even in distant Japan, its influence is felt. It was incorporated in 1829, and is, with the exception of the Pennsylvania Horticultural Society, the oldest in the country. It has steadily increased its membership, enlarged its plans, collected its valuable library, prospered financially, extended its influence and established its reputation in this and other countries as one of the leading horticultural societies in the world. It has outgrown its once ample accommodations and is perplexed with the problem of their enlargement.

It was a happy thought that suggested a union of this Society with this Board of Agriculture and the other societies. All will be benefited. We needed its help and influence, perhaps, far more than it needed ours. Let us endeavor to make the relation mutually pleasant and helpful.

Almost at the close of the year we were startled by the sudden death of the Hon. Marshall P. Wilder, at the ripe age of eighty-eight. He had been connected with this Society fifty-six years, and was more widely known and more prominent than any other member. He was the father of this Board of Agriculture, and an active member thereof since its organization in 1851. He was the father of the Agricultural College and one of the trustees for many years and one of its chief benefactors. He was the father of the American Pomological Society, and, (with the exception of one year) its president since its organization thirty-eight years ago. He was for twenty years President of the Norfolk Agricultural Society and on his retirement was made Honorary President. In 1852, he assisted in forming the United States Agricultural Society and was for six years its President.

He was an active or honorary member of many societies at

home and abroad. He was distinguished in military, political, and masonic circles, and as a citizen was held in high esteem. He was a man of fine personal presence and bearing,— honest, true to his friends,— and a Christian gentleman.

This Board shares with the Horticultural Society in a deep sense of loss by his removal from earth, and will cherish his memory with affectionate regard.

He wooed Nature with a passionate love, ministered at her altar, sought for her secrets with which to bless mankind.

"For all his life was poor without!
O, Nature! make the last amends;
Train all thy flowers his grave about
And make thy singing birds his friends.

"Revive again, thou summer rain,
The broken turf upon his bed!
Breathe, summer wind, thy tenderest strain
Of low, sweet music overhead!

"With calm and beauty symbolize
His peace, which follows long annoy;
And lend our earth-bent, mourning eyes
Some hint of his diviner joy.

"For safe with right and truth he is,—
As God lives he must live alway,
There is no end for souls like his;
No night for children of the day."

—WHITTIER.

REPORT FOR 1887.

BY HENRY H. GOODELL,

PRESIDENT OF THE STATE AGRICULTURAL COLLEGE, AMHERST.

In visiting the exhibitions of the Massachusetts Horticultural Society, one feels inclined to apply the words found in the first book of Moses, where, after seeing that the earth brought forth grass and herbs, yielding seed after his kind, and the tree yielding fruit, whose seed was in itself after his kind, the verdict was "that it was good." Where so much is good, it becomes difficult to know just how to measure one's praise.

A Society which, for fifty-nine years, has held its Annual Exhi-

bitions of fruit and flowers and offered its prizes for excellence, open to the competition of all, has been a factor for good in the horticulture of the State which no one can estimate.

Of the four exhibitions held during the year, your delegate attended three, being prevented from being present at the Rose and Strawberry Show, in June, by the duties of Commencement week. There were several noticeable features about these exhibitions deserving of special mention. That of March, aside from the magnificent show of hyacinths, narcissi, and tulips, stimulated by the medals offered by the Royal Union of Haarlem, Holland, for the encouragement of the growth of bulbs, was the wild flower garden from the Botanic Garden, Harvard University, a charming arrangement of rocks, pine trees, and moss, in which were blossoming all the favorites of the early spring. It was like being transported at a single bound, from the rigors of a northern winter to the balmy woods, dank with green moss and fern, and bright with its harvest of anemones and violets. Here were to be found all the commoner wild flowers, as well as those more rare, Trilliums, Columbines, Cowslips, Lady's Slippers, etc,— and, to make the illusion more complete, here and there even the skunk cabbage reared its fragrant spathe. It was a pretty idea — that of bringing the woods to your very door, and one to be imitated.

Shakespeare says :—

> "This is an Art
> Which does mend Nature : change it rather ; but
> The Art itself is Nature,"

and after all, the nearer we come to nature, the better we succeed.

On the Continent of Europe, the floral exhibitions have all the appearance of show flower gardens. Fountains are playing, birds are singing, and you walk about in extensive grounds, laid out in beautiful plats, in which the pots are buried deeply in the earth, turf being carefully adjusted so that the plants seem to be springing from the ground itself. As a result, there is a harmony and naturalness which is peculiarly delightful. Again, the art of arrangement is carefully studied, so as to produce the best effects. As regards this last particular, it seemed to your delegate that there was a defect in the exhibition now reported on, especially in the upper hall. The stand of azaleas occupying the centre was too stiff and cold, if such a term may be applied to a mass of

color. The azalea, as a plant, is in itself stiff, and the greater pains are requisite to cover this up. The group should have been more raised in the centre. On the other hand, the further stand of cinerarias, with roses as a centre-piece, was too much raised in the centre, and the effect was again lessened, but from an opposite cause.

There is one more point in which the example of our brothers on the Continent might be profitably followed, and that is in the encouragement given to the young to engage in horticultural pursuits. Special prizes are offered to them for flowers, fruits, and the best cultivated plots of ground, and every effort is made to awaken in them a taste for the cultivation of the earth and to employ the best methods. Ten years ago, in response to a request signed by Rufus Ellis, Henry W. Foote, and C. A. Bartol, gentlemen "interested in advancing a practical taste for horticulture among the children of the laboring classes," the Massachusetts Horticultural Society offered prizes for Window Gardening. The report of the Committee on this subject was significant: "Those who have watched this movement from the first, while cognizant of all the difficulties that lie in the way of all new departures, have been encouraged by the interest manifested and the good results shown. Letters from several gentlemen and ladies bear testimony to the happy influence already noticed." We are glad to know that the experiment has been repeated the present year and will be next year. Is it not worth while encouraging the 300,200 children of the State of Massachusetts to instruct themselves in so delightful a recreation? And may it not be hoped that the good seed sown will result in turning some few from the dull routine of a factory life, into the nobler occupation of tilling the soil and becoming producers.

The special features of the September exhibition held in conjunction with the meeting of the American Pomological Society, were the excellent display of foliage plants,—Crotons, Alocasias, Dracænas, Marantas, and the like, so arranged as to combine the harmonies of shading in the most thoroughly artistic manner,—the fine collection of tropical water lilies (ten different species,) all grown out of doors and crowned with the great *Victoria regia*, whose gigantic leaves attracted universal attention, and the historic orchid, the *Vanda Sanderiana*, whose value mounting up into the thousands, seemed to be in an inverse ratio to its beauty.

(It is, no doubt, very gratifying to be able to say that you have seen a two-thousand-dollar orchid, but you feel something like the man who, having completed the reading of Milton, thanked Heaven he should never have to do it again.)

The absence of that finest of the florist's flowers, the pansy, was very marked. Hardly any competitors appeared for the special prizes offered, and but a handful of flowers were to be seen anywhere.

An interesting exhibition in the fruit line was a basket of pears from the original Bartlett pear tree (that is, the first tree imported into this country), which stands in what was the garden of the late Enoch Bartlett, in Roxbury, but which is now in possession of the Little Sisters of the Poor. Another, was the instructive display from the Arnold Arboretum of native and foreign ornamental fall fruits of shrubs, together with which were some dozen varieties of the crab apple, illustrating its gradual development from fruit the size of a pea into the large crab apples of today.

With its accustomed liberality, the Horticultural Society offered special prizes, amounting to $500, for excellence in fruit at this exhibition.

The final exhibition, the Show of Chrysanthemums, was a fitting culmination to the work of the year. It is impossible in words to adequately express the wondrous beauty of the scene on looking down upon it from the gallery above. The wealth of color, shading into every tint of the rainbow was surprising, while matchless in their simplicity, rose the pure white forms of other varieties. Involuntarily, there came into the mind, the ancient myth of the marriage of the balmy West Wind with Flora and the consequent embroidering of the earth with flowers. "Ofttimes," she says, "have I desired to reckon the tints as they were arranged and I could not, for their multitude exceeded all numbers." But alas! how the poetry vanished into air before the stern reality of fact. "No marriage service," as Mr. Thorpe prettily puts it, "had been read over the union of these flowers by passing moth or butterfly," but the plain, prosaic, fine camel's hair brush, transferring the pollen from the stamens of the one flower to the pistils of the other, had brought about these wonderful results. Art had done away with nature's aids.

REPORT

OF THE

COMMITTEE ON PUBLICATION AND DISCUSSION,

FOR THE YEAR 1887.

It is the privilege of the Committee in submitting their report to state, and it may be equally gratifying to the Society to know, that the department of Publication and Discussion, is equally progressive with other departments of its work. The published parts of the TRANSACTIONS are of increased size, and the papers and discussions at the weekly meetings the past winter have treated of a variety of subjects relating to the theory and practice of horticulture. That they are well up with the progress of the age, and the advanced phases of the Society's work, is manifest.

The Committee hoped to obtain the best talent and experience, both within and outside of the Society, to treat of the several subjects announced in the printed programme for the winter meetings.

The Committee desire in behalf of the Society, to cordially thank not only its members, but especially those outside its membership, who have contributed to the interest by Papers, Reports, and Discussions during the past season. They are especially gratified to be able to add to the TRANSACTIONS the excellent portrait of our lamented Ex-President, Col. Wilder, which has been furnished by his family. The sketch of his life, suggested by President Walcott, and prepared by the Secretary, has met with general acceptance as reminding those who had long known him, and informing a younger generation, of his eminent services not only to this Society but to Horticulture and Pomology throughout our country.

The Committee have performed the duty again assigned to them of awarding the prizes for the best reports of the committees to award prizes for horticultural products, as follows:

They award the first prize of $10 to Charles N. Brackett for the Report of the Committee on Vegetables.

The Second Prize of $8 to Joseph H. Woodford for the Report of the Committee on Plants and Flowers.

The Third Prize of $6 to E. W. Wood for the Report of the Committee on Fruits.

O. B. Hadwen,
Francis H. Appleton,
William H. Hunt,
} *Committee on Publication and Discussion.*

REPORT

OF THE

COMMITTEE ON THE LIBRARY,

FOR THE YEAR 1887.

The present year, like those which have gone before, has seen the library very much augmented and the available funds all expended. The list appended to this report will give the titles of accessions, and it is, therefore, not necessary to specify many of them here. It may be well, however, to call attention to the well-known naturalist, Robert Ridgway's "Nomenclature of Color." This book, which was written more especially for ornithologists, will probably be of use to those who desire to describe the colors of flowers or fruit with accuracy. The greatest care has been taken in the preparation of this work to select, for the standard colors, pigments which are likely to resist the action of time and exposure. How valuable a feature this is will be appreciated by those who remember the present state of the earlier colored plates, in which all hues have faded, and some of them, notably the more intense, such as crimson, scarlet, and orange, are now simply blotches of gray or black.

The Card Catalogue of Plates has increased at the usual rate; that is, many thousand cards have been written and a great number have been put into their proper places in the drawers. It is found, on arranging these, that there are very many duplicates; in these cases the several references are entered upon one card to save space, and the duplicate cards are put away for future use.

It will be necessary before a great while to make a new catalogue of the library. The Committee advise that this be on cards, thereby greatly increasing its efficiency and convenience, while greatly diminishing its cost. They do not, however, recommend that this be undertaken until a very considerable increase is made

in the accommodations for the books. We have utilized, as it seems to us, all available space in this room and the committee-room, except that in front of the door into the Superintendent's office; even the space for the swinging of the folding doors has been saved by putting the curtain in their place; yet all this is a trifle in comparison with our needs. The new cases will accommodate about one-fifth of the books that are not now properly arranged.

As no one now, probably, expects the Society to occupy the Public Garden, we urge it to resume its consideration of the plans for a gallery, long ago submitted to it. The increase in books and pamphlets is, at present, remarkably rapid, and it is very desirable that something be done at a very early day.

For the Committee,

W. E. ENDICOTT, *Chairman.*

LIBRARY ACCESSIONS.

Books Purchased.

Darlington, William, M. D. Florula Cestrica. An essay towards a Catalogue of the Phænogamous Plants, native and naturalized, growing in the vicinity of the borough of West Chester, in Chester County, Pennsylvania. With brief notices of their properties and uses, in medicine, rural economy, and the arts. To which is subjoined an Appendix of the Useful and Cultivated Plants of the same district. 8vo. pp. xv., 152. 3 colored plates. West Chester, 1826.

Millspaugh, Charles F., M. D. American Medicinal Plants: an illustrated and descriptive guide to the American plants used as Homœopathic Remedies. Fascicle 6, completing the work. 4to. 30 colored plates. New York and Philadelphia: 1887.

Lloyd, J. U. and C. G. Drugs and Medicines of North America. Vol. 2. Nos. 3 to 5. Large 8vo. pamphlets, pp. 67–162. Plates 35–40, figures 131–165. December, 1886, to June, 1887.

Meehan, Thomas. The Native Flowers and Ferns of the United States in their Botanical, Horticultural, and Popular Aspects. Vols. 1 and 2 of the New Series, being vols. 3 and 4 of the whole. Large square 8vo. pp. 196, 204. 96 colored plates. Boston: 1880.

Gray, Asa, M. D. Botanical Contributions, 1886. [From the Proceedings of the American Academy of Arts and Sciences, Vol. 21. Issued May 4, 1886.] 1. A Revision of the North American Ranunculi. pp. 363–378. 2. Sertum Chihuahuense. pp. 378–409. 3. Miscellanea. pp. 409–443. 8vo. pamphlet.

Watson, Sereno. Contributions to American Botany. X. [From the Proceedings of the American Academy of Arts and Sciences. Vol. 17. Issued August 10, 1882.] I. List of Plants from Southwestern Texas and Northern Mexico, collected chiefly by Dr. E. Palmer in 1879–80. pp. 316–361. II. Descriptions of New Species of Plants from our Western Territories. pp. 362–382. 8vo. pamphlet.

——— ——. Contributions to American Botany. XI. [From the Proceedings of the American Academy of Arts and Sciences. Vol. 18. Issued August 15, 1883.] I. List of Plants from Southwestern Texas and Northern Mexico, collected chiefly by Dr. E. Palmer in 1879–80. pp. 96–191. II. Gamopetalæ to Acotyledones. II. Descriptions of some New Western Species. pp. 191–196. 8vo. pamphlet.

Bailey, L. H., Jr. Contribution from the Herbarium of Harvard University. [From the Proceedings of the American Academy of Arts and Sciences. Vol. 22. Presented April 14, 1886.] A preliminary Synopsis of North American Carices; including those of Mexico, Central America, and Greenland, with the American bibliography of the genus. 8vo. pamphlet. pp. 59–157.

Hemsley, W. B. Biologia Centrali-Americana. Botany. Vol. 4. Parts 22 and 23. 4to. pp. 49–298. London: March and August, 1887.

Spruce, Richard, Ph. D., etc. Palmæ Amazonicæ, sive Enumeratio Plantarum in itinere suo per regiones Americæ æquatoriales lectarum. [Extract from the Journal of the Linnean Society; Botany; Vol. XI. pp. 65–183.] 8vo. pamphlet. [London: 1869.]

Berg, Albert. Physiognomy of Tropical Vegetation in South America: a series of views illustrating the Primeval Forests of the river Magdalena and in the Andes of New Grenada. Large folio. pp. 12. 14 plates. London: 1854.

Sowerby, John Edward. English Botany: or Coloured Figures of British Plants. Third edition, enlarged. Vol. 12, completing the work. Marsiliaceæ to Characeæ, and Index to the whole work. Large 8vo. pp. 332. Plates 1825–1922. London: 1886.

Stephenson, John, M. D., F. L. S., and James Morss Churchill, F. L. S. Medical Botany: The Medicinal Plants and Poisonous Vegetables of Great Britain. 4 vols. Large 8vo. 185 colored plates. London: 1831.

Loudon, Mrs. British Wild Flowers. 4to. pp. 311. 60 colored plates. London: 1849.

Hulme, F. Edward, F. L. S., F. S. A. Familiar Wild Flowers. Fourth Series. Small 8vo. pp. 160. 40 colored plates. London, Paris, and New York: 1887.

Hallier, Dr. Ernst. Flora von Deutschland, Lieferungen 192–204 in continuation. Small 8vo. Many colored plates. Gera-Untermhaus: 1886, 1887.

Willkomm, Maurice. Illustrationes Floræ Hispaniæ Insularumque Balearicum. Livraisons 12, 13, being parts 2 and 3, of Vol. 2. 4to. pp. 17–48. Colored plates 102–119. Stuttgart: 1887.

Webb, MM. P. Barker -, and Sabin Berthelot. Phytographia Canariensis. 5 vols. Large 4to. pp. 181, 218, 491, 479, 208. 286 plates. Folio atlas of 20 plates. Paris and London: 1836–1840.

Regel, E. Flora of Turkestan. Vol. 3. Part 3, in continuation. Astragaleæ, by A. Bunge. 4to. pp. 161–318. Berlin and Moscow: 1880.

Labillardière, Jacobus-Julianus. Novæ Hollandiæ Plantarum Specimen. 2 vols. Large 4to. pp. 112, 131. 265 plates. Paris: 1804.

Zuccarini, Dr. Jos. Gerh. Monographie der Amerikanischen Oxalisarten. 4to. pp. 1–60. Plates 1–6. [Aus den Denkschriften der k. b. Akademie der Wissenschaften besonders abgedruckt.] München: 1825. Nachtrag, 4to. pp. 181–276. Plates 7–9. München: 1831.

Maw, George, F. L. S., etc., etc. A Monograph of the Genus Crocus. With an Appendix on the etymology of the words Crocus and Saffron, by C. C. Lacaita, F. L. S., etc. Large 4to. pp. 326. xx, 10. 77 colored plates, map, and two charts, and many vignettes and other woodcuts. London: 1886.

Hildebrand, Dr. Friedrich. Die Lebensverhältnisse der Oxalisarten. Large 4to. pp. 150. 5 lithographic plates. Jena: 1884.

Boissier, E. Icones Euphorbiarum: avec des considerations sur la classification et la distribution geographique des plantes de ce genre. Folio. pp. 24. 120 plates. Paris: 1866.

Fingerhuth, A., M. D. Monographia Generis Capsici. 4to. pp. 32 and iv. 10 colored plates. Dusseldorpii: 1832.

Zuccarini, Dr. J. G. Über einige Pflanzen aus den Gattungen Agave und Fourcroya. 4to. pp. 661–679. Plates 48–51. Breslau und Bonn: 1833.

Jacobi, General G. A. von. Über den Agaveen. 4 parts. 8vo. [Jahresbericht der Schlesischen Gesellschaft für vaterlandische Cultur, Verhandlungen der Botanischen Section.] 1867–1871.

Candolle, Alphonse et Casimir de. Monographiæ Phanerogarum Prodromi nunc continuatio, nunc revisio. Vol. 3, Philydraceæ, by T. Caruel: Alismaceæ, Butomaceæ, Juncagineæ, by Marco Micheli; Commelinaceæ, by C. B. Clarke; Cucurbitaceæ, by Alfred Cogniaux. pp. 1009. 8 plates. Vol. 4, Burseraceæ and Anacardiaceæ, by Ad. Engler; Pontederiaceæ, by Hermanno, Comite de Sohns Laubach. pp. 573. 15 plates. Vol. 5, Part 1, Cyrtandreæ, by C. B. Clarke. pp. 303. 32 plates. Part 2, Ampelideæ, by J. E. Planchon. pp. 305–654. 3 vols. 8vo. Paris: 1881–1887.

Baillon, H., Professeur, etc. Histoire des Plantes. Monographie des Caryophyllacées, etc. Imp. 8vo. pp. 81–224. [In continuation of the 9th vol.] 145 woodcuts. Paris and London: 1887.

Tournefort, Joseph Pitton de. Institutiones Rei Herbariæ. 3 vols. 4to. Vol. 1, text, pp. 697. Vols. 2 and 3, 476 plates. Paris: 1700.

Lamarck, M., and J. M. L. Poiret. Encyclopédie Methodique Botanique. 13 vols. text, and 4 vols. of 900 plates. 4to. Paris: 1783–1817.

Trattinnick, Leopoldo. Thesaurus Botanicus. Small folio. pp. 14. 80 colored plates. Vienna: 1819.

Hayne, Friedrich Gottlob. Getreue Darstellung und Beschreibung der in der Arzneikunde gebräulichen Gewachse, wie auch solcher, welche mit ihnen verwechselt werden können. 4to. Part of Vol. 14. Plates 1–24. Berlin: 1805–1846.

Smith, James Edward. Spicilegium Botanicum. Supplementary to Icones Pictæ Plantarum Rariorum. 4to. pp. 22. 24 colored plates. London: 1792.

Hooker, Joseph Dalton. Icones Plantarum. Third Series. Vols. 6, 7. 8vo. Plates 1501–1700. London: 1886, 1887.

Linnean Society of London. Transactions. 2d series. Botany. Vol. 2. Parts 9–14. August, 1886, to July, 1887. 4to. pp. 209–326. Plates 27–59. London: 1886, 1887.

——— ——— — ———. Journal. Vol. 22. Nos. 148, 149. pp. 401–560. Plates 20, 21. Vol. 23. No. 152. pp. 161–240. Plates 5, 6. Vol. 24. Nos. 158–161. pp. 1–261. Plates 1–8. 8vo. London: 1886, 1887.

Royal Agricultural Society of England. Journal. 2d series. Vol. 22, part 2. No. 44. pp. 361–756. Vol. 23. pp. 741. London: 1886, 1887.

Breyne, Jakob. Exoticarum aliarumque minus cognitarum plantarum. Centuria prima. Folio. pp. 195. 101 plates. With an Appendix, pp. i–vi, and De frutice thee et fasciculus rariorum plantarum, by Wilhelm tem Rhyne, pp. vii–xxv. Gedani: 1687.

Goebel, Dr. K. Outlines of Classification and Special Morphology of Plants: a new edition of Sach's Textbook of Botany, Book II. Authorized English Translation by Henry E. F. Garnsey, M. A., etc. Revised by Isaac Bayley Balfour, M. A., M. D., F. L. S., etc. Large 8vo. pp. 515. 407 woodcuts. Oxford: 1887.

Bastin, Edson S., A. M., etc. Elements of Botany, including Organography, Vegetable Histology, Vegetable Physiology, and Vegetable Taxonomy, and a Glossary of Botanical Terms. 8vo. pp. 282. 459 woodcuts. Chicago: 1887.

Strasburger, E., and W. Hillhouse. Handbook of Practical Botany: for the Botanical Laboratory and Private Student. 8vo. pp. 425. 134 woodcuts. London: 1887.

Sachs, Julius von. Lectures on the Physiology of Plants. Translated by H. Marshall Ward, M. A., F. L. S., etc. Large 8vo. pp. 836 455 woodcuts. Oxford: 1887.

Focke, Wilhelm Olbers. Die Pflanzen-Mischlinge: ein beitrag zur biologie der Gewächse. 8vo. pp. 569. Berlin: 1881.

Tupper, James Perchard. An Essay on the Probability of Sensation in Vegetables; with Additional Observations on Instinct, Sensation, Irritability, etc. Small 8vo. pp. 126. London: 1811.

McAlpine, Prof. D. Life Histories of Plants. Small square 8vo. pp. 296. 109 woodcuts; 58 diagrams. London: n. d.

Darwin, Charles, M. A., F. R. S. The Different Forms of Flowers on Plants of the same species. 8vo. pp. 352. 15 woodcuts. London: 1887.

Lindley, John. Observations on the Structure of Fruits and Seeds. Translated from the Analyse du Fruit of M. Louis-Claude Richard; with plates and original notes by Prof. Lindley. 8vo. pp. xx and 100. 6 plates. London: 1819.

Mohl, Dr. Heinrich. Morphologische Untersuchungen über die Eiche. 4to. pamphlet. pp. 35. 3 plates. Cassel: 1862.

Murray, Andrew. Floral Homologies of Conifers. Two pamphlets. 8vo. pp. 10 with 1 plate, and pp. 3. [From the Annals and Magazine of Natural History, for September and October, 1866.] London.

Goeppert, Heinrichus Robertus, Professor, etc. De Coniferarum structura anatomica. 4to. pamphlet. pp. 36. 2 plates. Vratislaviæ: 1841.

Hooker, Sir J. D. Botany. [Science Primer Series.] 3d edition. 16mo pp. 143. 72 woodcuts. London and New York: 1886.

Caddy, Mrs. Florence. Through the Fields with Linnæus: a chapter in Swedish History. 2 vols. 8vo. pp. 346, 376. 6 woodcuts and 2 maps. Boston and London: 1886.

Britten, James, F. L. S., and Robert Holland. A Dictionary of English Plant-Names. Part 3, completing the work. 8vo. pp. xxviii, 365–618. London: 1886.

American Journal of Science [Silliman's Journal]. Edited by James D. and Edward S. Dana. Vols. 115–134 inclusive, in continuation. 20 vols. 8vo. Plates. Hartford, Conn.: 1878–87.

Todaro, Dr. Augustino. Hortus Botanicus Panormitanus: sive Plantæ novæ vel criticæ, quæ in Orto Botanico Panormitano coluntur, descriptae et iconibus illustratæ. Tomus 2. Fasc. 4, in continuation. Folio. pp. 25–32. Plates 31, 32. Panormi: 1887.

Sloane, Hans. Voyage to the Islands of Madera, Barbados, Nieves, S. Christophers, and Jamaica; with the natural history of the herbs and trees, four-footed beasts, fishes, birds, insects, reptiles, etc., of the last of those islands, etc. 2 vols. Folio. pp. cliv and 264; xviii, 499, and xi. 1 chart and 274 plates. London: 1707 and 1725.

Michaux, F. A. Travels to the West of the Alleghany Mountains, in the States of Ohio, Kentucky, and Tennessee, etc. Undertaken in the year 1802, under the auspices of His Excellency M. Chaptal, Minister of the Interior. 2d edition. 8vo. pp. 294. London: 1805.

Thompson, Sir C. Wyville, Kn't, F. R. S., etc. Report on the Scientific Results of the Voyage of H. M. S. Challenger, during the years 1873–1876. Botany, Vol. 2, Report on the Diatomaceæ. Large 4to. pp. 178. 30 plates. London, Edinburgh, and Dublin: 1886.

Wawra v. Fernsee, Dr. Heinrich Ritter. Itinera Principum S. Coburgi. Die Botanische Ausbeute, etc. Erster Theil. Large 4to. pp. 182. 39 plates, mostly colored. Wien: 1883.

Jackson, Benjamin Daydon. Vegetable Technology; a contribution towards a Bibliography of Economic Botany; with a comprehensive subject index. Square 8vo. pp. 355. London: 1882.

Christy, Thomas, F. L. S., etc. New Commercial Plants and Drugs. Nos. 9 and 10, 2 pamphlets. 8vo. pp. 73, 123. 2 plates, 2 woodcuts. London: 1886.

Switzer, Stephen. Iconographia Rustica: or, The Nobleman, Gentleman, and Gardener's Recreation, etc. 2d edition, enlarged. 3 vols. 8vo. Over 50 copperplates. London: 1742.

Nicholson, George. The Illustrated Dictionary of Gardening; a practical and scientific encyclopedia of Horticulture for gardeners and botanists. Vol 2, F to O. pp. 544. 811 woodcuts. Vol. 3, P to S. pp. 537. 564 woodcuts. 2 vols. 4to. New York: 1887.

Dodwell, E. S., and others. Gossip for the Garden, a handbook for the florist and suburban horticulturist. [A monthly magazine.] 8 vols. 12mo. London: 1856–1863.

Cobbett, William. The English Gardener. 12mo. pp. 405. 12 plates. London: 1845.

Henderson, Peter. Gardening for Profit. New and enlarged edition. 12mo. pp. 376. 137 woodcuts. New York: 1887.

Fuller, Andrew S. The Propagation of Plants: giving the principles, etc. 12mo. pp. 349. 113 woodcuts. New York: 1887.

Abercrombie, John. The Hot-House Gardener. 8vo. pp. 238. 5 plates. London: 1789.

May, W. J. Greenhouse Management for Amateurs. 8vo. pp. 226. 13 woodcuts. London: n. d. [1887?]

Caledonian Horticultural Society. Memoirs of the. 4 vols. 8vo. 31 plates. Edinburgh: 1818–1829.

Webb, James. Cape Cod Cranberries. 12mo. pamphlet. pp. 41. Frontispiece. 17 woodcuts. New York: 1886.

Black, John J. The Cultivation of the Peach and the Pear on the Delaware and Chesapeake Peninsula. With a chapter on Quince culture and the culture of some of the Nut bearing trees. Small sq. 8vo. pp. 397. 8 plates. New York: 1887.

Harcourt, Helen. Florida Fruits and How to Raise Them. Revised and enlarged edition. Small 8vo. pp. 347. Louisville, Ky.: 1886.

Bernard, Mrs. Bayle. Our Common Fruits: a descriptive account of those ordinarily cultivated or consumed in Great Britain. 16mo. pp. 294. 6 colored plates. London: 1866.

Grindon, Leo. H. Fruits and Fruit Trees, Home and Foreign. Small 8vo. pp. 320. Frontispiece. Manchester, England: 1885.

Deutsche Obstsorten. Herausgegeben von einem Vereine Pomologen. 5 vols. Small 4to. 302 colored plates. Jena: n. d.

Thomson, David. A Practical Treatise on the Culture of the Pine Apple. 8vo. pp. 53. 3 woodcuts. Edinburgh and London: 1866.

Arnold, Edwin Lester. Coffee: its Cultivation and Profit. 8vo. pp. 270. 5 woodcuts. London: 1886.

Marshall, Henry, Deputy Inspector-General of Army Hospitals. Contribution to a Natural and Economical History of the Coco-Nut Tree. 8vo. pamphlet. pp. 32. Edinburgh: 1836.

Bonavia, E., M. D. The Future of the Date Palm in India. (Phœnix dactylifera.) 12mo. pp. 118. Calcutta: 1885.

Henderson, Peter. Practical Floriculture: a guide to the successful cultivation of florists' plants: for the Amateur and Professional Florist. New and enlarged edition. Large 12mo. pp. 325. 58 woodcuts. New York: 1887.

Anders, J. M., M. D., Ph. D., etc. House-Plants as Sanitary Agents; or, the relation of growing vegetation to health and disease. Large 12mo. pp. 334. Philadelphia: 1887.

Hibberd, Shirley. The Garden Oracle, and Illustrated Floricultural Year-Book for 1887. 29th year. Small 8vo. pp. 168. Woodcuts. London: 1886.

Hulme, F. Edward, F. L. S., F. S. A. Familiar Garden Flowers. 3d, 4th, and 5th series. 3 vols. Small 8vo. 120 colored plates. London, Paris, and New York: 1887.

Catlow, Agnes. Popular Greenhouse Botany, containing a Familiar and Technical Description of a selection of the Exotic Plants introduced into the Greenhouse. Square 16mo. pp. 311. 20 colored plates. London: 1857.

Allnutt, H. Our Flower Garden: how we made the most of it, etc. 2d edition. 16mo. pp. 91. London: n. d.

Heath, Francis George. My Garden Wild, and What I Grew There. Small 8vo. pp. 291. London: 1881.

Higgins, Rev. H. H. On a systematically arranged Border for Plants. 8vo. pamphlet, pp. 75–83. [Extract: published 1859].

Richardson, David Lester. Principal of the Hindu Metropolitan College, etc. Flowers and Flower Gardens: with an Appendix of practical instructions and useful information respecting the Anglo-Indian Flower Garden. 8vo. pp. 232 and xxxii. Calcutta: 1855.

Barla, J. - B. Chevalier, etc. Flore Illustrée de Nice et des Alpes-maritimes. Iconographie des Orchidées. Large 4to. pp. 83. 63 colored lithographic plates. Nice: 1868.

Sanders, F. Reichenbachia. Orchids Illustrated and Described. Parts 1–10. Large folio. pp. 90. 40 plates. St. Albans, London, and Berlin: 1886, 1887.

Lindenia, Iconographie des Orchidées. Vol. 2, Nos. 5–12. Vol. 3, Nos. 1–3. Folio. 40 colored plates. Gand: 1887.

Warner, Williams, and Moore. Orchid Album. Vol. 6, Nos. 66–72. Vol. 7, Nos. 73–76. 4to. 52 colored plates. London: 1887.

Veitch, James & Sons. Manual of Orchidaceous Plants cultivated under glass in Great Britain. Part I. Odontoglossum. pp. 80. 2 maps. Plates and cuts. Part II. Cattleya, Lælia, etc. pp. 108. 3 maps. Plates and cuts. Two pamphlets, 8vo. Chelsea, England: 1887.

Britten, James, F. L. S., and W. H. Gower. Orchids for Amateurs. 8vo. pp. 236. Many woodcuts. London: n. d. [1887?]

D'Ombrain, Rev. H. Honywood. The Rosarian's Year-Book for 1887. Small square 8vo. pp. 83. 4 woodcuts and portrait of Mr. George Prince. London: 1887.

Lamborn, Leeroy L. Carnation Culture. Its classification, history, propagation, varieties, care, culture, etc. 12mo. pp. 151. 9 woodcuts. Alliance, Ohio: 1887.

Ghys, M. B., Pharmacien. Essai sur le Chrysanthème, comprenant son histoire, sa classification, ses differents types, sa culture détaillée, et la description des 400 plus belles variétés. 8vo. pamphlet. pp. 32. 3 cuts. Anzin: 1885.

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Société Nationale d' Horticulture de France. Journal, 1887. 12 numbers 8vo. Also Report of the Congrès d' Horticulture de Paris en 1887, and circulars, etc., relating thereto, and to the meetings and exhibitions of the Society. Also Annales de la Société d' Horticulture de Paris, 53e livraison, Janvier, 1832, and Journal de la Société Impériale et Centrale d' Horticulture, Janvier, 1865, 2 pamphlets 8vo. and plates, completing the set. Mons. E. Glatigny, Librarian.

Société Centrale d' Horticulture du Département de la Seine-Inférieure. Bulletin. 3d and 4th cahiers of 1886 completing vol. 28; 1st and 2nd cahiers, of 1887. 4 pamphlets 8vo. Rouen: 1886, 1887. The Society.

Société d' Horticulture de la Sarthe. Bulletin. 4e trimestre 1886; 1e trimestre 1887. 2 pamphlets 8vo. Le Mans. The Society. Also series in 5 pamphlets 8vo., completing the years 1870–1871, from Mons. E. Glatigny, Librarian of the Société Nationale d' Horticulture de France.

Fédération des Sociétés d' Horticulture de Belgique. Bulletin. 1883, 1884, 1885. 8vo. pamphlet. pp. 264. Bruxelles: 1887. L. Lubbers, Secretary.

Algemeene Vereeniging voor Bloembollencultuur te Haarlem. Awards of Premiums for 1887. Premiums for Foreign Exhibitions in 1888.

Medals and other Prizes offered by local societies for early exhibitions of the year 1888. With other announcements. Small folio pamphlet. pp. 7. D. Bakker, Algemeen Secretaris.

R. Societa Toscana di Orticultura. Bulletino. vol. 12, 1887. [Vol. 2 of the 2d series.] 12 numbers large 8vo. 13 plates and 11 woodcuts. Florence 1887. The Society.

Joly, Ch. Note sur l' Exposition Horticole de Florence. 8vo. pamphlet. pp. 8. Paris: 1887. The Author.

United States Department of Agriculture. Report of the Commissioner for the year 1886. 8vo. pp. 719. Colored and plain plates. Washington: 1887. Also Report of the Commissioner, submitted November 15, 1887. 8vo. pamphlet. pp. 42. Washington: 1887. Hon. Norman J. Colman, Commissioner.

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United States Consular Reports relative to Cattle and Dairy Farming. 8vo. pp. 855. 369 plates. Washington: 1887. Hon. George F. Hoar.

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——— ——— ——— — ———. Supplement to the General Index of the Agricultural Reports; for the years 1877–1885. By the Commissioner of Agriculture. 8vo. pamphlet. pp. 113. Washington: 1886. The Commissioner.

New England Agricultural Society. Twenty-fourth Annual Fair, August 30 and 31 and September 1 and 2. List of Officers, Regulations, Premiums offered, etc. 8vo. pamphlet. pp. 39. Worcester: 1887. Extra copies for distribution. Edmund Hersey.

Massachusetts Board of Agriculture. Thirty-fourth Annual Report of the Secretary, with returns of the finances of the Agricultural Societies for the year 1886. 8vo. pp. 547. 8 plates. Boston: 1887. John E. Russell, Secretary. 50 copies.

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Essex Agricultural Society. Transactions for the year 1886; with the 64th Annual Address and Premium List for 1887. 8vo. pamphlet. pp. 231. Gloucester: 1886. David W. Low, Secretary.

Amesbury and Salisbury Agricultural and Horticultural Society. Transactions for the year 1886; with the Secretary's Report of the Twenty-third Annual Fair, held at Amesbury, October 5 and 6, 1886. 8vo. pamphlet. pp. 32. Amesbury, Mass: 1886. The Society.

Marshfield Agricultural and Horticultural Society. Transactions for 1886, with the List of the Premiums for 1887. 8vo. pamphlet. pp. 48 and 20. Plymouth: 1887. F. Collamore, Secretary.

Maine Board of Agriculture. Thirtieth Annual Report of the Secretary for the year 1886–87. pp. 396. With an Appendix containing the Annual Report of the State Pomological Society, and selected papers etc. pp. 191. 2 plates. 8vo. Augusta: 1887. Z. A. Gilbert, Secretary.

Franklin County Agricultural Society. Transactions for the year 1886. 8vo. pamphlet. pp. 44. Greenfield: 1886. The Society.

Hampden County Agricultural Society. Programme of Horse and Cattle Show, and Fair, at Holyoke, Mass., September 21 and 22, 1887. 8vo. pamphlet. pp. 8. 1887.

Hampden Agricultural Society. Forty-second Annual Report, for the year ending December 15, 1886. 8vo. pamphlet. pp. 20. Springfield: 1887. J. N. Bagg, Secretary.

Highland Agricultural Society. Transactions for 1886; with Constitution, By-laws, etc. Also Lists of Officers, Premiums offered, etc., for 1887. 8vo. pamphlet. pp. 50. Springfield, Mass.: 1887. The Society.

Berkshire Agricultural Society. Transactions for 1886; with the Premium List for 1887. 8vo. pamphlet. pp. 44 and 24. Pittsfield: 1886. William H. Murray, Secretary.

Hoosac Valley Agricultural Society. Twenty-sixth Annual Report. Transactions for the year 1886. 8vo. pamphlet. pp. 69. North Adams: 1887. H. Clay Bliss, Secretary.

Nantucket Agricultural Society. Transactions for 1886 and 1887 together with the Lists of Premiums offered for 1887 and 1888. 2 pamphlets 8vo. pp. 43 and 40. Nantucket: 1886, 1887. The Society.

Housatonic Agricultural Society. Transactions. 1886. 8vo. pamphlet. pp. 56. Great Barrington: 1886. The Society.

Agriculture of Pennsylvania. Containing Reports of the State Board of Agriculture (pp. 326), the State Agricultural Society (pp. 172), the State Dairymen's Association (pp. 51), the State Horticultural Association (pp. 92), and the State College (pp. 20), for 1886. 1 vol. 8vo. Colored and plain plates and woodcuts. Harrisburg: 1887. Thomas J. Edge, Secretary of State Board of Agriculture. Also extra copies for distribution.

Virginia Department of Agriculture. Ninth Annual Report of the Commissioner of Agriculture. 8vo. pp. 92 and 63. Richmond: 1887. Also Reports for January, April, May, July, and September, 1887, on Crops, etc. 4 pamphlets 8vo. and broadside. Richmond: 1887. Randolph Harrison, Commissioner.

Georgia Department of Agriculture. Circulars, Nos. 87–96, on Analyses and Valuations of Commercial Fertilizers, etc. 10 pamphlets 8vo. Atlanta: 1887. J. T. Henderson, Commissioner.

International Association of Fairs and Expositions. Report of the Fourth Annual Convention, held at Chicago, Ill., December 15 and 16, 1886. 8vo. pamphlet. pp. 62. St. Louis: 1887. Festus J. Wade, Secretary.

Iowa Agricultural Society. Report of the Board of Directors for the year 1886. 8vo. pp. 653. Des Moines: 1887. John R. Shaffer, Secretary.

Nebraska State Board of Agriculture and State Horticultural Society. Annual Report for 1884. Two pamphlets in one. 8vo. pp. 206 and 91. Lincoln: 1886. Daniel H. Wheeler.

Sociedad Rural Argentina. Anales, 1887. 24 numbers, large 8vo. Buenos Aires: 1887. The Society.

Asociacion del Uruguay. Vol. 16, 1887. 24 numbers, large 8vo. Montevideo: 1887. The Society.

Potter, J. S. U. S. Consul at Crefeld. Report on Agriculture in Germany and subjects connected therewith. 8vo. pamphlet. pp. 23. Washington: 1887. The Secretary of State.

Maine State College of Agriculture and the Mechanic Arts, Orono. Annual Report of the Trustees and Faculty, 1886. 8vo. pamphlet. pp. 56. Frontispiece. Augusta: 1886. M. C. Fernald, President.

Massachusetts Agricultural College. Twenty-fourth Annual Report. January, 1887. 8vo. pamphlet. pp. 78. H. H. Goodell. President.

Commemorative Addresses delivered at the Massachusetts Agricultural College, June 21, 1887, on the Twenty-fifth Anniversary of the passage of the Morrill Land Grant Act. 8vo. pamphlet. pp. 61. Amherst, Mass.: 1887.

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Michigan Agricultural College. Bulletins 22–30, on Varieties of Apples, Plant Lice, Commercial Fertilizers, Forest Products, [6 copies,] etc. 9 pamphlets 8vo. Lansing: 1887. Also Bulletin No. 31:

being the Annual Report of the Professor of Horticulture and Landscape Gardening to the President of the College, for the year 1887. Large 8vo. pamphlet. pp. 96. 13 woodcuts. Lansing: 1887. The College.

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Massachusetts State Agricultural Experiment Station. Fourth Annual Report of the Board of Control for the year 1886. 8vo. pamphlet. pp. 136. Frontispiece and 2 plates. Boston: 1887. Also Bulletins 23–27, in continuation. C. A. Goessmann, Director, etc.

New York Agricultural Experiment Station. Bulletin No. 9. New Series. Was it Poison or Overfeeding? Small 8vo. pamphlet. pp. 3. Geneva, N. Y.: March 1, 1887. E. Lewis Sturtevant, M. D., Director.

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Sturtevant, E. Lewis, Director New York Agricultural Experiment Station. Chat of a Station Director. 8vo. pamphlet. pp. 12. From Report of Connecticut Board of Agriculture for the year 1887. The Author.

New Jersey Agricultural Experiment Station. Seventh Annual Report for the year 1886. 8vo. pamphlet. pp. 215. Trenton: 1887. Also, Bulletin 41, January, 1887. Extraction of Sugar from Sorghum. Bulletin 42, September, 1887. Analyses and Valuations of Complete Fertilizers. Two pamphlets, 8vo. pp. 26, 21. Trenton: 1887. George H. Cook, Director.

University of Wisconsin Agricultural Experiment Station. Bulletin No. 11. On Wheat, Oats, Barley, Potatoes, and Corn, for 1886. 8vo. pamphlet. pp. 18. Madison: April, 1887. Fourth Annual Report for the year 1886. 8vo. pp. 196. 3 colored plates and 6 diagram sheets. Madison: 1887. Bulletin No. 12. The Oil Test for Cream. 8vo. pamphlet. pp. 15. Madison: October, 1887. Professor W. A. Henry, Director.

United States Department of Agriculture. Forestry Division. Bulletin No. 1. Report on the Relation of Railroads to Forest Supplies and Forestry: together with appendices on the Structure of some Timber Ties, their behavior and the cause of their decay in the roadbed: on Wood Preservation: on Metal Ties: and on the Use of Spark Arresters. 8vo. pamphlet. pp. 149. Many plates and woodcuts. Washington: 1887. The Commission. Annual Report for 1886, by B. E. Fernow, Chief of Division. 8vo. pamphlet. pp. 149–226 and 1 diagram sheet. Washington: 1887. The Author.

American Forestry Congress. Annual Meeting held in Springfield, Ill., commencing September 14, 1887. [Preliminary Newspaper Report.] 8vo. pamphlet. pp. 28. Springfield, 1887. B. E. Fernow, Secretary.

Gilson, F. H. Trees of Reading, Mass. Part I. 4to. 5 heliotype plates. Reading: 1887. The Author.

Arnold Arboretum. Annual Reports of the Director, to the President and Fellows of Harvard College, for the years 1884–85, 1885–86. 2 pamphlets 8vo. pp. 7 and 3. Cambridge: 1886, 1887. Charles S. Sargent, Director.

New York State Forest Commission. Reports for the years 1885 and 1886. 2 vols. 8vo. pp. 362 (with map), and 177. Albany: 1886, 1887. Abner L. Train, Secretary.

Forestry in Europe. Reports from the Consuls of the United States. 8vo. pamphlet. pp. 315. 8 plates. Washington: 1887. 2 copies. Hon. Thomas F. Bayard, Secretary of State.

Annuaire des Eaux et Forêts. 26e Année. 1887. 16mo. pp. 436. Paris: 1887. Publisher of the Revue des Eaux et Forêts.

Boston Parks Commissioners. Twelfth Annual Report. [Document 24; 1887.] For the year 1886. 8vo. pamphlet. pp. 29. Boston: 1887. The City of Boston.

Boston Common and Public Grounds. Superintendent's Annual Report for 1886. [Document 41; 1887.] 8vo. pamphlet. pp. 47. 4 plates. Boston: 1887. The City of Boston.

Worcester Parks-Commission. Annual Report for the year ending November 30, 1886. 8vo. pamphlet. pp. 40. Worcester, Mass.: 1887. Edward Winslow Lincoln, Chairman.

Brooklyn Park Commissioners. Twenty-Fifth Annual Report for 1885. 8vo. pp. 85. 6 photographic views. Brooklyn, N. Y.: 1886. Edward H. Brundage.

Baltimore Park Commission. Twenty-Seventh Annual Report, for the fiscal year ending December 31, 1886. 8vo. pamphlet. pp. 50. Baltimore: 1887.

Chicago South Park Commissioners. Reports to the Board of Commissioners of Cook County for the years 1884, 1885, and 1886. 3 pamphlets. 8vo. pp. 43 (with 1 plate), 36, and 36. Chicago: 1884–1886. H. W. Harmon, Secretary.

Mount Auburn Cemetery. Annual Report of the Trustees; with the Reports of the Treasurer and Superintendent. January, 1887. 8vo. pamphlet. pp. 16. Boston: 1887. The Corporation.

Forest Hills Cemetery. Annual Report of the Trustees, February, 1887. 8vo. pamphlet. pp. 33. Boston: 1887. John G. Barker, Superintendent.

United States Department of Agriculture. Division of Entomology. Bulletin No. 10, by C. V. Riley. Our Shade Trees, and their Insect Defoliators. pp. 69. 27 woodcuts. No. 12, prepared by the Entomologist. Miscellaneous (Supplementary) Notes on the Work of the Division for the year 1885. With a paper on the Periodical Cicada, by Amos W. Butler. pp. 46. 1 plate. No. 13. Reports of Observations and Experiments in the practical work of the Division, made under the direction of the Entomologist. pp. 78. No.

14. Observations and Experiments. No. 15. The Icerya or Fluted Scale. No. 16. The Entomological Writings of Dr. A. S. Packard. 6 pamphlets. 8vo. Washington, 1886, 1887. The Commissioner.

Riley, Charles V., M. A., Ph. D. Report of the Entomologist; from the Annual Report of the Department of Agriculture for the year 1886. 8vo. pamphlet. pp. v, 459–592, and ix. 11 plates (1 colored). Author's Edition. Washington: 1887. The Author.

Ontario Entomological Society. Seventeenth Annual Report. 8vo. pamphlet. pp. 64. 45 woodcuts. Toronto: 1887. Edmund Baynes Reed, Secretary-Treasurer.

Illinois State Laboratory of Natural History. Vol. 2, Article 2, and Vol. 3, Articles 1–3. 6 pamphlets. 8vo. Containing articles on the Parasitic Fungi of Illinois, by Professor T. J. Burrill and F. S. Earle; on the Parasites of the Lesser Apple Leaf-roller, Teras minuta, by Clarence M. Weed, and other subjects in Natural History. Peoria: 1886, 1887. Professor S. A. Forbes, Director.

Illinois State Entomologist's Office. Bulletins. No. 1. Arsenical Poisons for the Codling Moth. pp. 24. 11 diagrams. No. 2. On the Chinch Bug in Illinois. pp. 27–43. No. 3. Contribution to a Knowledge of the Life History of the Hessian Fly. pp. 45 to 61. 3 pamphlets. 8vo. By S. A. Forbes, Ph. D., State Entomologist. Springfield and Champaign: 1887.

Joly, Ch. Note sur le Concours International tenu a Florence, relativement aux appareils a projetir les insecticides. 8vo. pamphlet. pp. 4. Paris: 1887. The Author.

Remilly, Eugène. Le Sulphure de Carbone; son influence sur les animaux. 12mo. pamphlet. pp. 12. Versailles: 1887. Ch. Joly.

Ottawa Field Naturalists' Club. Transactions. Vol. 2, No. 3. 8vo. pamphlet. pp. 285–373. Ottawa, Canada: 1887. T. J. McLaughlin, Librarian.

Ottawa Naturalist. Vol. 1. Nos. 1–9. April to December, 1887. 9 pamphlets. 8vo. Ottawa, Canada. The Ottawa Field Naturalists' Club.

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Boston Society of Natural History. Memoirs. Vol. 3, Nos. 6–13. April, 1883, to September, 1886. [In continuation.] 8 pamphlets. 4to. Plates 37–48. The Society.

Clark, Hubert L. The Birds of Amherst and Vicinity, including nearly the whole of Hampshire County, Mass. With an Introduction by Professor C. H. Fernald, Ph. D. 8vo. pamphlet. pp. 55. Amherst, Mass.: 1887. H. H. Goodell.

Brookville Society of Natural History. Bulletin No. 2. A. W. Butler and A. N. Crecraft, Editors. 8vo. pamphlet. pp. 52. Richmond, Ind.: 1886. The Society.

New York Microscopical Society. Journal. Vol. 2, Nos. 8, 9, 9a; Vol. 3, Nos. 1–4. November, 1886, to October, 1887, inclusive. 7 numbers. 8vo. 3 plates. New York. The Society.

Massachusetts Institute of Technology. President's Report, December 8, 1886. 8vo. pamphlet. pp. 32. Boston: 1886. Twenty-second and Twenty-third Annual Catalogues, for the years 1886–87 and 1887–88. 2 pamphlets. 8vo. pp. 162 and 164. Boston: 1886, 1887. The Institute.

University of Illinois. Catalogue and Circular for the year 1886–87. Small 8vo. pamphlet. pp. 98. Champaign: 1887. Professor T. J. Burrill, Corresponding Secretary.

Illinois Industrial University. Thirteenth Report of the Board of Trustees, for the two years ending September 30, 1886. 8vo. pp. 305. Frontispiece. Springfield: 1887. Professor T. J. Burrill, Corresponding Secretary.

Bowdoin College. Eighty-sixth Annual Catalogue, for the academical year 1887–88. 8vo. pamphlet. pp. 60. Brunswick, Maine: 1887. William De Witt Hyde, D. D., President.

Leopoldina: Amtliches Organ der Kaiserlichen Leopoldino-Carolinischen Deutschen Akademie der Naturforscher. Einundzwanzigstes Heft. Jahrgang, 1885. 4to. pamphlet. pp. 216. Halle: 1885. Dr. C. H. Knoblauch.

United States Commissioner of Education. Report for the year 1884–85. 8vo. pp. 848. Washington: 1886. Circulars of Information, Nos. 1 and 2, 1886, and No. 2, 1887. 3 pamphlets. 8vo. pp. 78, 169, and 299, the last with 17 plates. Washington: 1886, 1887. N. H. R. Dawson, Commissioner.

Lawrence Free Public Library. Fifteenth Annual Report for the year 1886. 8vo. pamphlet. pp. 28. Lawrence, Mass.: 1887. Frederick H. Hedge, Jr., Librarian.

Astor Library. Thirty-eighth Annual Report of the Trustees, for the year 1886. 8vo. pamphlet. pp. 46. New York: 1887. The Trustees.

Library Company of Philadelphia. Bulletins. January and July–September, 1887, the latter the Constitutional Centennial Number. 2 pamphlets. 8vo. pp. 24, and 40 and xv.

New England Historic Genealogical Society. Proceedings at the Annual Meeting, January 5, 1887. 8vo. pamphlet. pp. 48. The Society.

Wisconsin State Historical Society. Thirty-fourth Annual Meeting, held January 6, 1887. 8vo. pamphlet. pp. 32. Madison: 1887. The Society.

Kansas State Historical Society. Fifth Biennial Report. 8vo. pamphlet. pp. 109. Topeka: 1887. Franklin G. Adams, Secretary.

Thorburn, Grant. Fifty Years' Reminiscences of New York, or Flowers from the Garden of Laurie Todd. Small 12mo. pp. 287. Portrait. New York: 1845. Charles L. Allen.

Flax and Hemp Spinners and Growers. Report of the Proceedings of the Convention of, held in Greenwich, N. Y., February 10, 1887, with

the Report of the Annual Meeting of the Flax and Hemp Spinners and Growers' Association. 8vo. pamphlet. pp. 40. Boston: 1887. A. R. Turner, Jr., President.

Knapp, Rev. Frederick Newman. Address, delivered at the Re-opening of the Town Hall at Walpole, N. H., February 10, 1887, with the other exercises of the occasion. 8vo. pamphlet. pp. 27. Keene, N. H.: 1887. The Author.

Harrison, J. B. The Latest Studies on Indian Reservations. Small 8vo: pamphlet. pp. 233. Philadelphia: 1887. The Author.

United States Consular Reports. Nos. 1, 2, 4, 5, 8, 9, 14, 16, 18, 19, 23. 25½, 53½, and 69–85. On the Commerce, Manufactures, etc. of the Consular Districts; Foreign Customs Duties; Emigration: etc. 30 pamphlets. 8vo. Also, Index to Consular Reports, Nos. 1–59. 8vo. pamphlet. pp. 213. Washington: 1880–1887. The Secretary of State.

Periodicals Purchased.

English. — Gardeners' Chronicle.
Gardeners' Magazine.
Journal of Horticulture and Cottage Gardener.
The Garden.
Gardening Illustrated.
Horticultural Times and Covent Garden Gazette.
Curtis's Botanical Magazine.
Journal of Botany.
Grevillea.

French. — Revue Horticole.
Revue des Eaux et Forêts.
Journal des Roses.

Belgian. — Illustration Horticole.
Revue de l'Horticulture Belge et Étrangère.

German. — Botanische Zeitung.

American.—Country Gentleman.
American Naturalist.
American Journal of Science.

Periodicals Received in Exchange.

Gartenflora.
Gardeners' Monthly.
Canadian Horticulturist.
American Garden.

Popular Gardening.
Vick's Illustrated Monthly Magazine.
Horticultural Art Journal.
American Florist.
Orchard and Garden.
Green's Fruit Grower.
Fruit and Grape Grower.
Seed-Time and Harvest.
Botanical Gazette.
Journal of Mycology.
West American Scientist.
Ottawa Naturalist.
Maine Farmer.
The Home Farm and Eastern Farmer.
Mirror and Farmer.
New England Farmer.
Massachusetts Ploughman.
American Cultivator.
New England Homestead.
Our Country Home.
American Agriculturist.
Rural New Yorker.
American Rural Home.
The Farm Journal.
Germantown Telegraph.
Maryland Farmer.
Florida Dispatch.
Prairie Farmer.
Student's Farm Journal.
The Industrialist.
Pacific Rural.
Boston Daily Advertiser.
Boston Morning Journal.
Boston Post.
Boston Daily Globe.
Boston Evening Transcript.
Boston Daily Evening Traveller.
New York Weekly World.
The Cottage Hearth.

REPORT

OF THE

SECRETARY AND LIBRARIAN,

FOR THE YEAR 1887.

As in past years, the keeping of various records, making reports of meetings and exhibitions, answering inquiries personally or by correspondence, and preparing the TRANSACTIONS and other publications for the press, have been the chief duties which I have been called on to perform as Secretary. It is obvious to anyone, upon the slightest reflection, that the last named of these various duties requires, that it may be performed in the shortest time and to the best advantage, such quiet and freedom from interruption that the labor shall be continuous, but I regret to say that the interruptions to this and work of similar character have never been so great as during the year now nearly closed. The same cause has also greatly lessened the suitableness of the Library Room as a place for the study of our books.

In my report for 1885, I spoke of the revision of the list of members, then in progress. This work was continued during the succeeding year and the results appeared in the second part of the TRANSACTIONS for that year. But after the most diligent inquiry there remained thirty-eight Life Members whom we were wholly unable to trace. These names were marked in the list of members with a dagger, and a more emphatic request than before was made for information concerning them, but only a single member responded to this request.

The unsuccessful attempt to secure a site for a building in the Public Garden for the use of the Society, necessarily added much to the work of the Secretary.

The increase in the library by the addition through donation and exchange of the reports of horticultural and agricultural societies, boards of agriculture, agricultural experiment stations, etc., remarked upon last year, still continues, and these publications form one of the most valuable departments of the library. Most of

them are American publications recording the results of practice or experiment under circumstances similar to those surrounding the members of our own Society, and therefore far more valuable than similar books from European sources. To be of the greatest value the series of these various reports should be perfect and unbroken, and to secure this it is necessary that every report as it comes to hand should be at once placed with those previously received, and at the same time examined to make sure that it is consecutive with them; but owing to the crowded state of our library we have in many instances been unable to secure this systematic order, but have been obliged to place the new arrivals wherever room could be found for them. As an indication of the rapid increase of books of this desirable class, I may mention that the record book of Library Accessions (other than those purchased from the Stickney Fund) which was begun in February, 1869, was filled in October, 1882, requiring a period of nearly sixteen years. Another book of the same size was then procured, which was filled at the end of the last month, a period of a little more than five years, showing that the additions to the library from the sources now under consideration during this second period have averaged fully three times as many as during the first period.

The removal of the heavy and cumbrous folding doors between the two rooms, and the substitution of a *portière*, has added much to our convenience, when it is desired to use the smaller apartment for the private meeting of a committee, and it has also improved the appearance of the room. Two new bookcases have lately been placed in the library, one of which exhausts all the space in the smaller room, and the other all that on the floor of the larger room, leaving as the only resource in these rooms, the construction of the gallery heretofore planned. The two new bookcases afford a slight but entirely inadequate relief, as they will hold but a very small part of the books which have long required better accommodation, and a part of the space afforded by them was immediately filled by some of the books comprised in our last importation from Europe, which had to wait until the completion of these bookcases because there was absolutely no room for them elsewhere. It cannot be doubted that it is the purpose of the Society to provide sufficient accommodation for the Library as soon as it sees its way clear to do so, but it should be understood that whenever this is done it will involve an almost entire re-arrangement of all the books,— a work of great magnitude and

one which increases with every day's delay. A card catalogue of the books is also exceedingly desirable, but it is hoped that the present catalogue may be made to answer until there shall be sufficient space for a systematic arrangement of the books, as otherwise much of the work would unavoidably require to be done over again.

Perhaps there is no library in our country containing so large a proportion as our own of costly illustrated books. The plates, often of high value as works of art, offer temptations which the experience of other libraries has shown, are not always resisted. The Library Committee, therefore, in 1865, adopted the measure of precaution commonly used in libraries, by procuring a stamp for the purpose of stamping every plate with the impress of the Society as soon as received. This was, however, kept up for less than a year, but the present Library Committee have now directed it to be resumed. It will make a permanent addition to the work of those having immediate charge of the library, but if it prevents the mutilation of valuable books the labor will be well bestowed.

The work of binding those books most needing it has been continued during the present year. The largest number of any one set which has thus been made convenient for use is forty volumes of the Journal of the National Horticultural Society of France. For the completion of this set our most grateful acknowledgements are due to Mons. E. Glatigny, the Librarian of that Society, whose painstaking kindness has been unwearied. With those previously bound it now consists of sixty-three volumes. There are but three sets of books in the library comprising as many volumes as this: viz., Curtis's Botanical Magazine, of 91 volumes; the Journal of Horticulture and Cottage Gardener, of 77 volumes; and the Gardener's Chronicle, of 63 volumes, the same number as the work under consideration. Twenty-five volumes (all thus far received) of the new edition of Hallier's Flora Von Deutschland, have also been bound. This work will be completed in four or five more volumes, and it is thought that when these are added our collection of books on the Botany of Central Europe, will be so full that further additions may for the present be suspended.

ROBERT MANNING,

Secretary and Librarian.

TREASURER'S REPORT,

FOR THE YEAR 1887.

RECEIPTS.

Cash on hand, January 1st, 1887,			$5,516 52
Rent of Halls,			7,834 51
Rent of Stores,			12,936 44
Admissions and Assessments,			930 00
Stickney Fund, Sale of Books,			7 50
Mount Auburn Cemetery,			3,096 09
Annual Exhibitions,		$3,277 85	
Less Expenses,		2,988 12	
			289 73
State Bounty,			600 00
Interest on Bonds,			208 89
" " Deposits,			75 17
" " the following Funds at 5 per cent. per annum:			
	Principal.	Interest.	
Samuel Appleton Fund,	$1,000 00	$50 00	
John A. Lowell "	1,000 00	50 00	
Theodore Lyman "	11,000 00	550 00	
Josiah Bradlee "	1,000 00	50 00	
Benjamin V. French "	500 00	25 00	
H. H. Hunnewell "	4,000 00	200 00	
William J. Walker "	2,354 13	117 72	
Levi Whitcomb "	500 00	25 00	
Benjamin B. Davis "	500 00	25 00	
			1,092 72
Josiah Stickney "	12,000 00		
Interest expended on Library,			679 97
M. B. Faxon, Special Prize Fund,			20 00
Estate of Marshall P. Wilder, for Prizes for Grapes and Pears,			1,000 00
			$34,287 54

EXPENDITURES.

Labor,	$1,557 75	
Salaries,	2,875 00	
Incidentals,	284 84	
Interest,	3,292 06	
Taxes,	2,412 00	
Repairs on Building,	161 97	
Heating, $569, and Water Tax, $71.85,	640 85	
Lighting,	851 71	
Furniture and Exhibition Ware,	498 46	
Prizes for 1886, $5,752.58; Window Gardening, $41.72,	5,794 30	
Committee of Arrangements,	225 70	
Committee on Publication and Discussion,	120 00	
Stationery, Printing, and Postage,	1,168 24	
Card Catalogue,	101 25	
Stickney Fund,	687 47	
Library,	300 00	
Legal Services,	50 00	
Sinking Fund,—C., B. & Q. Bonds, $5,000, 4%,—cost	4,925 00	
Kansas City and Springfield Bond, $1,000, cost	980 00	
Cash on hand, December 31st, 1887,	7,360 94	
		$34,287 54

ASSETS.

Real Estate,			$250,000 00
Furniture and Exhibition Ware,	1886,	$6,585 56	
	Added, 1887,	498 46	
			7,084 02
Library,	1886,	$25,646 12	
	Added, 1887,	987 47	
			26,633 59
Stereotype Plates and Copies of History,			299 50
Chicago, Burlington and Quincy Bonds,			1,500 00
Illinois Grand Trunk Bond,			500 00
Kansas City and Springfield Bond,			1,000 00
Chicago, Burlington and Quincy Bonds, $5,000,			4,925 00
Cash on hand December 31st, 1887,			7,360 94
			$299,303 05

LIABILITIES.

Mortgage on Building, . . .		$30,000 00	
Josiah Stickney Fund, payable to Harvard College in 1899, without interest,		12,000 00	
The following Prize Funds invested in Building:			
Samuel Appleton Fund,	$1,000 00		
John A. Lowell "	1,000 00		
Theodore Lyman "	11,000 00		
Benjamin V. French "	500 00		
Josiah Bradlee "	1,000 00		
William J. Walker "	2,354 48		
Levi Whitcomb "	500 00		
H. H. Hunnewell "	2,500 00		
		19,854 48	
The following Prize Funds invested in Bonds aforementioned:			
H. H. Hunnewell Fund,	$1,500 00		
Benjamin B. Davis " .	500 00		
Marshall P. Wilder " .	1,000 00		
		3,000 00	
Prizes for 1887 due and unpaid, . .		7,174 00	
			72,028 48
Surplus, ...			$227,274 57

MEMBERS.

Number of Life Members per last report, .	576	
Added during the year, ...	12	
Commuted from Annual, . . .	2	
	590	
Deceased during the year, or now first reported, ...	29	
		561
Annual Members per last report, . . .	256	
Added during the year, ...	15	
	271	

Deceased,	10			
Discontinued,	28			
Commuted to Life,	2			
		40		
			231	
Total Membership,				792

INCOME FROM MEMBERSHIP.

12 Life Members,	$360 00	
15 Annual Members,	150 00	
190 Assessments,	380 00	
2 Commuted,	40 00	
Total Income from Members,		$930 00

The Finance Committee having audited the accounts of the undersigned, made and subscribed to on a book kept for that purpose, the following report:

The Massachusetts Horticultural Society

In account with George W. Fowle, *Treasurer.*

Credit:—

By balance in treasury, December 31, 1886,	$5,516 52
" total income, as per cash book,	30,589 56
	$36,106 08

Debit:—

To cash paid, as per cash book,	$28,745 14
" balance to new account,	7,360 94
	$36,106 08

Boston, February 27, 1888.

We have examined the above account and find it correct, and the balance of cash on hand seventy-three hundred and sixty dollars and ninety-four cents, as stated.

H. H. Hunnewell,
Frederick L. Ames,
H. P. Walcott,
} *Finance Committee.*

The Finance Committee, on the 1st of January of this year, commenced a new system of book-keeping, which clearly shows the financial position of the Society, showing in detail the legacies and donations received by the Society, and giving proper credit to the generous donors, particulars of which will be found in the Treasurer's statement.

During the past year the sum of forty-nine hundred and twenty-five dollars has been invested in Railroad Bonds for the Sinking Fund, and one thousand dollars received from the estate of the late Marshall P. Wilder has been invested in a Railroad Bond.

GEORGE W. FOWLE,

Treasurer.

Dr. *Massachusetts Horticultural Society, in account with the Proprietors of the Cemetery of Mt. Auburn.* **Cr.**

For Sales and Improvements within the Cemetery for the year ending December 31, 1887.

To cost of filling up and improving land at Mt. Auburn for the year ending December 31, 1887; the Massachusetts Horticultural Society being charged with their proportion of the same:		
Glen Avenue,	$56 25	
Maple and Viburnum Avenues,	99 00	
Birch Avenue to Eagle and Cherry Avenues,	172 51	
	$327 76	
One-quarter of $327.76 is	$81 94	
Balance due Massachusetts Horticultural Society,	3,096 09	
		$3,178 03
		$3,178 03

By Sales in January,	$445 00	
" " " February,	350 00	
" " " March,	141 25	
" " " April,	1,855 00	
" " " May,	3,800 13	
" " " June,	1,902 75	
" " " July,	1,910 00	
" " " August,	333 00	
" " " September,	620 00	
" " " October,	985 00	
" " " November.	575 00	
" " " December,	406 00	
	$13,323 13	
Net amount received from Receiving Tomb,	829 00	
	$14,152 13	
Less graves repurchased,	40 00	
	$14,112 13	
Deduct for Annual Expenses,	1,400 00	
	$12,712 13	
Mass. Horticultural Society's one-fourth part of $12,712 13 is		$3,178 03

E. & O. E.

H. B. MACKINTOSH, *Treasurer.*

December 31, 1887.

MASSACHUSETTS HORTICULTURAL SOCIETY,

To the PROPRIETORS OF THE CEMETERY OF MOUNT AUBURN, *Dr.*

For one-fourth part of the following expenditures for grading new lands for sale during the year 1887:

Glen Avenue.

25 days, men, ...	$56 25	
		$56 25

Maple and Viburnum Avenues.

44 days, men, ...	$99 00	
		$99 00

Birch Avenue to Eagle and Cherry Avenues.

7½ days, men, ...	$16 88	
41½ " man and horse, ...	155 63	
		$172 51
		$327 76
One-fourth part of $327.76 is		$81 94

J. W. LOVERING,
Superintendent.

MOUNT AUBURN, Dec. 31, 1887.

I certify the foregoing to be a true copy of improvements for the year 1887, rendered by the Superintendent.

H. B. MACKINTOSH,
Treasurer.

Massachusetts Horticultural Society.

OFFICERS AND STANDING COMMITTEES FOR 1888.

President.

HENRY P. WALCOTT, of Cambridge.

Vice-Presidents.

CHARLES H. B. BRECK, of Brighton. FREDERICK L. AMES, of North Easton.
BENJAMIN G. SMITH, of Cambridge. WILLIAM H. SPOONER, of Jamaica Plain.

Treasurer and Superintendent of the Building.

GEORGE W. FOWLE, of Boston.

Secretary and Librarian.

ROBERT MANNING, of Salem.*

Recording Secretary.

ROBERT MANNING, of Salem.

Professor of Botany and Vegetable Physiology.

JOHN ROBINSON, of Salem.

Professor of Entomology.

SAMUEL H. SCUDDER, of Cambridge.

Standing Committees.

Executive.

THE PRESIDENT, HENRY P. WALCOTT, CHAIRMAN.
THE CHAIRMAN OF THE FINANCE COMMITTEE, H. H. HUNNEWELL; WILLIAM C. STRONG, FREDERICK L. AMES, CHARLES H. B. BRECK, HENRY WELD FULLER, CHARLES S. SARGENT, WILLIAM H. SPOONER, EDWARD L. BEARD.

* Communications for the Secretary, on the business of the Society, should be addressed to him at Horticultural Hall, Boston

Finance.

H. HOLLIS HUNNEWELL, CHAIRMAN.

HENRY P. WALCOTT. FREDERICK L. AMES.

Publication and Discussion.

O. B. HADWEN, CHAIRMAN.

FRANCIS H. APPLETON. WILLIAM H. HUNT.

Establishing Prizes.

CHAIRMAN OF COMMITTEE ON FRUITS, CHAIRMAN.
CHAIRMEN OF COMMITTEES ON PLANTS AND FLOWERS, VEGETABLES, AND GARDENS, *EX OFFICIIS;* C. M. ATKINSON, EDWARD L. BEARD, JACKSON DAWSON.

Library.

WILLIAM E. ENDICOTT, CHAIRMAN.
THE PROFESSOR OF BOTANY AND VEGETABLE PHYSIOLOGY AND THE PROFESSOR OF ENTOMOLOGY, *EX OFFICIIS;*

J. D. W. FRENCH. NATHANIEL T. KIDDER.
FRANCIS H. APPLETON. GEORGE W. HUMPHREY.

Gardens.

JOHN G. BARKER, CHAIRMAN.
CHAIRMEN OF COMMITTEES ON FRUITS, PLANTS AND FLOWERS, AND VEGETABLES, *EX OFFICIIS;* CHARLES W. ROSS, HENRY W. WILSON, DAVID ALLAN.

Fruit.

E. W. WOOD, CHAIRMAN.

BENJAMIN G. SMITH. J. W. MANNING. WARREN FENNO.
CHARLES F. CURTIS. O. B. HADWEN. SAMUEL HARTWELL.

Plants and Flowers.

JOSEPH H. WOODFORD, CHAIRMAN.

F. L. HARRIS. WARREN H. MANNING. ARTHUR H. FEWKES.
W. A. MANDA. MICHAEL H. NORTON. WILLIAM J. STEWART.

Vegetables.

CHARLES N. BRACKETT, CHAIRMAN.

WARREN HEUSTIS. CEPHAS H. BRACKETT. P. G. HANSON.
VARNUM FROST. JOHN C. HOVEY. J. WILLARD HILL.

Committee of Arrangements.

EDWARD L. BEARD, CHAIRMAN.
CHAIRMEN OF COMMITTEES ON FRUITS, PLANTS AND FLOWERS, VEGETABLES, AND GARDENS, *EX OFFICIIS;*

PATRICK NORTON. ROBERT FARQUHAR.

MEMBERS FOR LIFE.

Members of the Society and all other persons who may know of deaths, changes in residence, or other circumstances showing that the following list is inaccurate in any particular will confer a favor by promptly communicating to the Secretary the needed corrections.

Information, or any clew to it, is especially desired in regard to members whose names are marked thus †.

Adams, Luther, Brighton.
Albro, Charles, Taunton.
Alger, R. F., Becket.
Allan, David, Mount Auburn.
Ames, Frank M., Canton.
Ames, Frederick L., North Easton.
Ames, George, Boston,
Ames, Preston Adams, South Hingham.
Amory, Charles, Boston.
Amory, Frederick, Boston.
Anderson, Alexander, West Hingham.
Andrews, Charles L., Milton.
Andrews, Frank W., Boston.
Andros, Milton, San Francisco, Cal.
Appleton, Edward, Reading.
Appleton, Francis H., Peabody.
Appleton, William S., Boston.
Atkins, Elisha, Boston.
Augur, P. M., Middlefield, Conn.
Avery, Edward, Boston.
Ayling, Isaac, M. D., Waltham.

Bailey, Edwin C., West Stowe, Vt.
Baker, William E., Boston.
Bancroft, John C., Boston.
Banfield, Francis L., M. D., Worcester.
Barnard, James M., Malden.
Barnard, Robert M., Everett.
Barnes, Walter S., Somerville.
Barnes, William H., Boston.
†Barney, Levi C., Boston.
Barratt, James, Cambridgeport.
Barrett, Edwin S., Concord.
Bartlett, Edmund, Newburyport.
Bates, Amos, Hingham.
Bates, Caleb, Kingston.
Beal, Alexander, Dorchester.
Beal, Leander, Boston.
Beckford, Daniel R., Jr., Dedham.
Bell, Joseph H., Quincy.
Berry, James, Brookline.
Bickford, Weare D., Newtonville.
Birchard, Charles, Framingham.
Black, James W., Cambridge.
Blake, Arthur W., Brookline.
Blakemore, John E., Roslindale.
Blanchard, John W., Dorchester.
Blaney, Henry, Boston.
Blinn, Richard D., Chicago, Ill.
Bliss, William, Springfield.
Bocher, Prof. Ferdinand, Cambridge.
Bockus, Charles E., Dorchester.
Bond, George W., Jamaica Plain.
Borland, John N., M. D., New London, Conn.
Botume, John, Wyoming.
Bouvé, Thomas T., Boston.
Bowditch, Azell C., Somerville.
Bowditch, Charles P., Jamaica Plain.
Bowditch, J. Ingersoll, Jamaica Plain.
Bowditch, William E., Roxbury.
Bowker, William H., Boston.
Brackett, Cephas H., Brighton.
Brackett, Charles N., Newton.
Bradish, Levi J., Boston.

Bragg, Samuel A. B., Dorchester.
Bresee, Albert, Hubbardton, Vt.
Brewer, Francis W., Hingham.
Brewer, John Reed, Boston.
Brewer, Otis, West Roxbury.
Brigham, William T., Boston.
Brimmer, Martin, Boston.
Brintnall, Benjamin, Charlestown.
Brooks, Francis, West Medford.
Brown, Alfred S., Jamaica Plain.
Brown, Charles E., Yarmouth, N. S.
Brown, Edward J., Weston.
Brown, George Bruce, Framingham.
† Brown, G. Barnard, Boston.
Brown, Jacob, Woburn.
Brownell, E. S., Essex Junction, Vt.
† Bruce, Nathaniel F., Stoneham.
Bullard, John R., Dedham.
Bullard, William S., Boston.
Burnett, Joseph, Southborough.
Burnham, Thomas O. H. P., Boston.
Burr, Fearing, Hingham.
Burr, Matthew H., Hingham.
Buswell, Edwin W., New York, N. Y.
Buswell, Frank E., New York, N. Y.
† Butler, Aaron, Wakefield.
Butler, Edward K., Jamaica Plain.
Butterfield, William P., East Lexington.

Cabot, Edward C., Brookline.
Cadness, John, Flushing, N. Y.
Cains, William, South Boston.
Calder, Augustus P., Boston.
Capen, John, Boston.
Carlton, Samuel A., Boston.
Carruth, Charles, Boston.
Carter, Miss Sabra, Wilmington.
Cartwright, George, Dedham.
Chadbourne, Marshall W., Watertown.
Chamberlain, Chauncey W., Boston.
Chapin, Nathaniel G., Brookline.
Chapman, Edward, South Framingham.
Chase, Andrew J., Lynn.
Chase, Daniel E., Somerville.
Chase, George B., Boston.
Chase, Hezekiah S., Boston.
Chase, William M., Baltimore, Md.
Cheney, Benjamin P., Boston.
Child, Francis J., Cambridge.
Child, William C., Medford.
Childs, Francis, Charlestown.
Childs, Nathaniel R., Boston.
Choate, Charles F., Cambridge.
Claflin, Henry, Newton.
Claflin, William, Newton.
Clapp, Edward B., Dorchester.
Clapp, James H., Dorchester.
Clapp, William C., Dorchester.
Clark, Benjamin C., Boston.
Clark, Orus, Boston.
Clarke, Miss Cora H., Jamaica Plain.
Clay, Henry, Dorchester.
Cleary, Lawrence, West Roxbury.
Clement, Asa, Dracut.
Cleveland, Ira, Dedham.
Cobb, Albert A., Brookline.
Coburn, Isaac E., Everett.
Codman, James M., Brookline.
Codman, Ogden, Lincoln.
Coffin, G. Winthrop, West Roxbury.
Coffin, William E., Dorchester.
Collamore, Miss Helen, Boston.
Converse, Elisha S., Malden.
Converse, Parker L., Woburn.
Coolidge, Joshua, Watertown.
Copeland, Franklin, West Dedham.
Coy, Samuel I., Boston.
Crosby, George E., West Medford.
Crowell, Philander, Chelsea.
Crowell, Randall H., Chelsea.
Cummings, John, Woburn.
Curtis, Charles F., Jamaica Plain.
Curtis, George S., Jamaica Plain.
Cushing, Robert M., Boston.

† Daggett, Henry C., Boston.
Damon, Samuel G., Arlington.
Dana, Charles B., Wellesley.
Darling, Charles K., Boston.
Davenport, Edward, Dorchester.
Davenport, George E., Medford.

Davenport, Henry, Boston.
Dawson, Jackson, Jamaica Plain.
Deblois, Stephen G., Boston.
Dee, Thomas W., Mount Auburn.
Denny, Clarence H., Boston.
Denton, Eben, Dorchester.
Dewson, Francis A., Newtonville.
Dexter, F. Gordon, Boston.
Dickerman, George H., Somerville.
Dike, Charles C., Stoneham.
Dinsmore, William B., New York, N. Y.
Dorr, George, Dorchester.
Dove, George W.W., Andover.
Durant, William, Boston.
Durfee, Mrs. Fidelia B., Fall River.
Durfee, George B., Fall River.
Dutcher, F. J., Hopedale.

Eaton, Horace, Quincy.
Eldridge, Azariah, Yarmouthport.
†Eldridge, E. H., Roxbury.
Ellicott, Joseph P., Boston.
Elliott, Mrs. John W., Boston.
Endicott, William E., Canton.
Eustis, William C., Hyde Park.
Everett, William, Dorchester.

Fairchild, Charles, Belmont.
Falconer, William, Glencove, N.Y.
Farlow, John S., Newton.
Farlow, Lewis H., Newton.
Farquhar, Robert, Boston.
†Faxon, John, Quincy.
Fenno, J. Brooks, Boston.
Fewkes, Arthur H., Newton Highlands.
Fewkes, Edwin, Newton Highlands.
Fillebrown, John, Arlington.
Fisher, David, Newport, R.I.
Fisher, James, San Diego, Cal.
Fisher, Warren, Boston.
Flagg, Augustus, Boston.
Fleming, Edwin, West Newton.
Fletcher, George V., Belmont.
Fletcher, John W., Chelsea.
Fletcher, J. Henry, Belmont.
Flint, Charles L., Boston.
Flint, David B., Watertown.
Flynt, William N., Monson.
Forster, Edward J., M. D., Charlestown.
Foster, Francis C., Cambridge.
Fottler, John, Jr., Dorchester.
Fowle, George W., Jamaica Plain.
Fowle, William B., Auburndale.
Freeman, Abraham, Dorchester.
French, Jonathan, Boston.
French, J. D. Williams, Boston.
Fuller, Henry Weld, Roxbury.

Galvin, John, West Roxbury.
Gardner, Henry N., Belmont.
Gardner, John L., Brookline.
Gibbs, Wolcott, M.D., Newport, R. I.
Gillard, William, Atlantic.
Gilmore, E. W., North Easton.
Gilson, F. Howard, Reading.
Glover, Albert, Boston.
Glover, Joseph B., Boston.
Goddard, A. Warren, Brookline.
Goddard, Mrs. Mary T., Newton.
Goodell, L. W., Dwight.
Gorham, James L., Jamaica Plain.
†Gould, Samuel, Boston.
Gray, James, Wellesley.
Gregory, James J. H., Marblehead.
Greig, George, Toronto, Ontario.
Grey, Benjamin, Malden.
Groom, Thomas, Dorchester.
Grundel, Hermann, Dorchester.
Guild, J. Anson, Brookline.

Hadwen, Obadiah B., Worcester.
Hall, Edwin A., Cambridgeport.
Hall, George A., Chelsea.
Hall, George R., Fort George, Fla.
Hall, John R., Roxbury.
Hall, Lewis, Cambridge.
Hall, Stephen A., Revere.
Hall, William F., Brookline.
Halliday, William H., South Boston.
Hammond, Gardiner G., New London, Conn.

Hammond, Samuel, Boston.
Hanson, P. G., Woburn.
Harding, Charles L., Cambridge.
Harding, George W., Arlington.
Harding, Lewis B., Boston.
Harding, William C., Stamford, Ct.
Hardy, F. D., Jr., Cambridgeport.
Harrington, Leonard B., Salem.
Harrington, Nathan D., Somerville.
Harris, Charles, Cambridge.
Harris, Thaddeus William, A. M., Cambridge.
Hart, William T., Boston.
Hastings, Levi W., Brookline.
Hathaway, Seth W., Marblehead.
Haughton, James, Boston.
Hayes, Daniel F., Exeter, N. H.
Hayes, Mrs. Francis B., Senior, Lexington.
Hayes, Francis B., Lexington.
†Hazeltine, Hazen, Boston.
Head, Charles D., Brookline.
Henshaw, Joseph P. B., Boston.
Heywood, George, Concord.
Hilbourn, A. J., Boston.
Hill, George, Arlington.
Hill, John, Stoneham.
Hitchings, E. H., Malden.
Hittinger, Jacob, Belmont.
Hoar, Samuel, Concord.
Hodgkins, John E., Chelsea.
†Hollis, George W., Grantville.
Hollis, John W., Allston.
Holt, Mrs. Stephen A., Winchester.
Hooper, Thomas, Bridgewater.
Horner, Mrs. Charlotte N. S., Georgetown.
Hovey, Charles H., Cambridgeport.
Hovey, John C., Cambridgeport.
Hovey, Stillman S., Woburn.
Hubbard, Charles T., Weston.
Hubbard, Gardner G., Cambridge.
Hubbard, James C., Everett.
Humphrey, George W., Dedham.
Hunneman, Joseph H., Boston.
Hunnewell, Arthur, Wellesley.
Hunnewell, H. Hollis, Wellesley.
Hunnewell, Walter, Wellesley.
Hunt, Franklin, Boston.
Hunt, William H., Concord.
Hyde, James F. C., Newton Highlands.

Inches, Herman B., M. D., Boston.

Jackson, Abraham, Boston.
Jackson, Charles L., Cambridge.
Jackson, Robert T., Dorchester.
Janvrin, William S., Revere.
Jeffries, John, Boston.
Jenks, Charles W., Boston.
Johnson, J. Frank, Boston.
Joyce, Mrs. E. S., Medford.

Kakas, Edward, West Medford.
Kelly, George B., Jamaica Plain.
†Kendall, D. S., Woodstock, Ont.
Kendall, Edward, Cambridgeport.
Kendall, Joseph R., San Francisco, Cal.
Kendrick, Mrs. H. P., Allston.
Kennard, Charles W., Boston.
Kennedy, George G., M. D., Milton.
Kent, John, Charlestown.
†Keyes, E. W., Denver, Col.
Keyes, George, Concord.
Kidder, Nathaniel T., Milton.
†Kimball, A. P., Boston.
King, Franklin, Dorchester.
Kingman, Abner A., Brookline.
Kingman, C. D., Middleborough.
Kinney, John M., East Wareham.

Lancaster, Charles B., Newton.
Lane, John, East Bridgewater.
Lawrence, James, Groton.
Lawrence, John, Boston.
Lee, Charles J., Dorchester.
Lee, Henry, Boston.
Leeson, Joseph R., Newton Centre.
Lemme, Frederick, Arlington.
Leuchars, Robert B., Boston.
Lewis, A. S., Framingham.
Lewis, William G., Framingham.
Lincoln, George, Hingham.

Lincoln, Col. Solomon, Boston.
Little, James L., Jr., Brookline.
Locke, William H., Belmont.
Lockwood, Rhodes, Boston.
Lodge, G. Henry, M. D., Boston.
Loftus, John P., North Easton.
Loomis, Jason B., Boston.
Lord, George C., Newton.
Loring, Caleb W., Beverly Farms.
Loring, George B., Salem.
Lovett, George L., West Newton.
† Lowder, John, Watertown.
Lowell, Augustus, Boston.
Luke, Elijah H., Cambridgeport.
Lumb, William, Boston.
Lunt, Charles H., Jamaica Plain.
Lyman, Theodore, Brookline.
Lyon, Henry, Charlestown.

† Mahoney, John, Boston.
Mann, James F., Ipswich.
Mann, Jonathan, Milton.
Manning, Jacob W., Reading.
Manning, Mrs. Lydia B., Reading.
Manning, Robert, Salem.
Manning, Warren H., Reading.
Martin, Darius A., Chelsea.
Martin John S., Roxbury.
Matthews, Nathan, Boston.
McCarty, Timothy, Providence, R.I.
McClure, John, Revere.
McWilliam, George, Whitinsville.
Melvin, James C., West Newton.
Merriam, Herbert, Weston.
Merriam, M. H., Lexington.
Merrifield, William T., Worcester.
Metivier, James, Cambridge.
Minton, James, Boston.
Moore, John H., Concord.
Morrill, Joseph, Jr., Roxbury.
† Morse, Samuel F., Boston.
Morse, William A., Boston.
Motley, Thomas, Forest Hills.
Mudge, George A., Portsmouth, N.H.
Munroe, Otis, Boston.

Needham, Daniel, Groton.
Nevins, David, Framingham.
Newman, J. R., Winchester.
Newton, Rev. William W., Pittsfield.
Nickerson, Albert W., Marion.
Nickerson, George A., Dedham.
Norton, Charles W., Allston.
Nourse, Benjamin F., Boston.

Oakman, Hiram A., North Marshfield.
Osgood, James Ripley, Boston.

Packer, Charles H., Boston.
† Page, Thomas, Boston.
Paige, Clifton H., Boston.
Palmer, Julius A., Jr., Boston.
Parker, Augustus, Roxbury.
Parker, Mrs. Margaret, Wakefield.
Parkman, Francis, Jamaica Plain.
† Partridge, Henry, Dunkirk, N. Y.
Partridge, Horace, North Cambridge.
Paul, Alfred W., Dighton.
Peabody, John E., Salem.
Pearce, John, West Roxbury.
Peck, O. H., Denver, Col.
Peck, W. G., Arlington.
Peirce, Silas, Boston.
Penniman, A. P., Waltham.
Perkins, Augustus T., Boston.
Perkins, Edward N., Jamaica Plain.
Perkins, William P., Wayland.
† Perry, George W., Malden.
Philbrick, William D., Newton Centre.
Pierce, Dean, Brookline.
Pierce, Henry L., Boston.
Pierce, Samuel B., Dorchester.
Poor, John R., Somerville.
Potter, Joseph S., Arlington.
Prang, Louis, Roxbury.
Pratt, Laban, Dorchester.
Pratt, Lucius G., West Newton.
Pratt, Robert M., Boston.
Pratt, William, Winchester.
Pray, Mark W., Boston.
† Prescott, Eben C., Boston.
Prescott, William G., Boston.
Prescott, William G., Quincy.
Pringle, Cyrus G., Charlotte, Vt.
Proctor, Thomas P., West Roxbury.

Prouty, Gardner, Littleton.
Pulsifer, Royal M., Auburndale.
Putnam, Joshua H., Brookline.

Quinby, Hosea M., M.D. Worcester.

Rand, Miss Elizabeth L., Newton Highlands.
Rand, Oliver J., Cambridgeport.
Rawson, Warren W., Arlington.
Ray, James F., Franklin.
Ray, James P., Franklin.
Ray, Joseph G., Franklin.
Reed, George W., Boston.
Richards, John J., Boston.
Richardson, Charles E., Cambridgeport.
Rinn, J. Ph., Boston.
Ripley, Charles, Dorchester.
Robbins, I. Gilbert, Dorchester.
Robbins, Nathan, Arlington.
Robeson, William R., Boston.
Robinson, John, Salem.
Robinson Joseph B., Allston.
Ross, Henry, Newtonville.
Ross, M. Denman, Forest Hills.
Ross, Waldo O., Boston.
Ruddick, William H., M. D., South Boston.
Russell, George, Woburn.
Russell, John E., Leicester,
Russell, Walter, Arlington.

† Sanborn, Amos C., Cambridgeport.
Sanford, Oliver S., Hyde Park.
Sargent, Charles S., Brookline.
Sargent, John O., Lenox Furnace.
Saville, Richard L., Brookline.
Sawtelle, Eli A., Boston.
Sawyer, Timothy T., Charlestown.
† Scott, Charles, Newton.
Scudder, Charles W., Brookline.
Sears, J. Montgomery, Boston.
Seaver, Nathaniel, East Boston.
Shaw, Christopher C., Milford, N.H.
Shimmin, Charles F., Boston.
Shorey, John L., Lynn.
Skinner, Francis, Boston.
Smith, Benjamin G., Cambridge.
Smith, Calvin W., Grantville.
Smith, Charles H., Jamaica Plain.
Smith, Chauncey, Cambridge.
Smith, Edward N., San Francisco.
Smith, George O., Boston.
Smith, James H., Needham.
Snow, Eben, Cambridge.
Snow, Miss Salome H., Brunswick, Me.
Sparhawk, Edward C., Brighton.
Spaulding, Edward, West Newton.
Spaulding Mahlon D., Boston.
Speare, Alden, Newton Centre.
Spencer, Alfred W., Boston.
Springall, George, Malden.
Stetson, Nahum, Bridgewater.
Stewart, William J., Winchester.
Stickney, Rufus B., Somerville.
† Stimpson, George, New York, N.Y.
Stimpson, H. H., Cambridge.
Stone, Amos, Everett.
Stone, George F., Newton.
Stone, Phineas J., Charlestown.
Story, E. Augustus, Brighton.
Strong, William C., Newton Highlands.
Sturgis, John H., Brookline.
Sturgis, Russell, Manchester.
Sturtevant, E. Lewis, M.D., South Framingham.
Surette, Louis A., Concord.

Taft, John B., Cambridge.
Tarbell, George G., M.D., Boston.
Taylor, Horace B., Boston.
Thurlow, Thomas C., Newburyport.
Tidd, Marshall M., Woburn.
Tilton, Stephen W., Roxbury.
Todd, John, Hingham.
Tolman, Benjamin, Concord.
Tolman, Miss Harriet S., Boston.
Torrey, Everett, Charlestown.
†Turner, John M., Dorchester.
Turner, Roswell W., Dorchester.
Turner, Royal W., Randolph.

Underwood, Guy C., Roxbury.
Underwood, William J., Belmont.

Vinal, Miss Mary L., Somerville.
Vose, Benjamin C., Hyde Park.

Wainwright, William L., Braintree.
Wakefield, E. H., Cambridge.
Walcott, Henry P., M.D., Cambridge.
Wales, George O., Braintree.
Walker, Edward C. R., Roxbury.
Walker, Theophilus W., Waltham.
Walley, Mrs. W. P., Boston.
Walton, Daniel G., Wakefield.
Ward, John, Newton.
Wardwell, William H., Newton Centre.
Ware, Benjamin P., Beach Bluff.
Warren, George W., Boston.
Washburn, Andrew, Hyde Park.
Waters, Edwin F., Newton Centre.
Waters, George F., Boston.
Watson, Thomas A., East Braintree.
Watts, Isaac, Waverly.
Webber, Aaron D., Boston.
Weld, Aaron D., West Roxbury.
Weld, Christopher Minot, Jamaica Plain.
Weld, George W., Newport, R. I.
Weld, Moses W., M. D., Boston.
Weld, Richard H., Boston.
Weld, William G., Boston.
West, Mrs. Maria L., Neponset.
Weston, Leonard W., Lincoln.
Weston, Seth, Revere.
Wheeler, Frank, Concord.
Wheelwright, A. C., Boston.
Whipple, John A., Boston.
Whitcomb, William B., Medford.
White, Benjamin C., Boston.
White, Edward A., Boston.
White, Francis A., Brookline.
Whitely, Edward, Cambridgeport.
Whittle, George W., Westminster, Vt.
†Whytal, Thomas G., New York, N. Y.
Wilbur, George B., West Newton.
Wilder, Edward Baker, Dorchester
Wilder, Henry A., Malden.
Willard, E. W., Newport, R. I.
Willcutt, Levi L., West Roxbury.
Williams, Aaron D., Boston.
Williams, Benjamin B., Boston.
Williams, Philander, Taunton.
Willis, George W., Chelsea.
Willis, Joshua C., Roxbury.
Wilson, Henry W., Boston.
Wilson, William Power, Boston.
Woerd, Charles V., Waltham.
Woerd, Charles V., Jr., Waltham.
Wood, Charles G., Boston.
Wood, Luke H., Marlborough.
Wood, R. W., Jamaica Plain.
Wood, William K., West Newton.
Woods, Henry, Boston.
Woodward, Royal, Brookline.
Wright, George C., West Acton.

ANNUAL MEMBERS.

Members of the Society and all other persons who may know of deaths, changes of residence, or other circumstances showing that the following list is inaccurate in any particular, will confer a favor by promptly communicating to the Secretary the needed corrections.

Abbot, Samuel L., M. D., Boston.
Abbott, Allen V., Boston.
Aird, Duncan, Belmont.
Allen, Charles L., Garden City, N.Y.
Andrews, Augustus, Dorchester.
Atkinson, Charles M., Brookline.
Atkinson, Edward, Brookline.
Atkinson, William B., Newburyport.

Bacon, Augustus, Roxbury.
Bacon, William, Roxbury.
Badlam, William H., Dorchester.
Barber, J. Wesley, Newton.
Bard, James, Framingham.
Barker, John G., Jamaica Plain.
Beard, Edward L., Cambridge.
Beebe, J. Arthur, Boston.
Beer, Carl, New York, N.Y.
Bird, John L., Dorchester.
Bliss, Benjamin K., Boston.
Bock, William A., North Cambridge.
Bolles, Matthew, Boston.
Bolles, William P., Roxbury.
Bolton, John B., Somerville.
Bowditch, E. F., Framingham.
Bowditch, James H., Brookline.
Bowker, Albert, East Boston.
Boyden, Clarence F., Taunton.
Breck, Charles H., Brighton.
Breck, Charles H. B., Brighton.
Brooks, George, Brookline.
Brown, Atherton T., Roxbury.
Brown, David H., West Medford.
Brown, Joseph T., Boston.
Burley, Edward, Beverly.
Butler, Edward, Wellesley.

Carter, Miss Maria E., Woburn.
Cartwright, James, Wellesley.
Chaffin, John C., Newton.
Chase, Joseph S., Malden.
Chase, Leverett M., Roxbury.
Cheney, Amos P., Natick.
Clark, James W., Framingham.
Clark, Joseph, Manchester.
Clark, Joseph W., Dedham.
Clark, Theodore M., Newtonville.
Collins, Frank S., Malden.
Comley, James, Lexington.
Crafts, William A., Boston.
Crosby, J. Allen, Jamaica Plain.
Curtis, Daniel T., Sharon.
Curtis, Joseph H., Boston.

Davenport, Albert M., Watertown.
Davis, Frederick, Newton.
Davis, Thomas M., Cambridgeport.
De Mar, John A., Brighton.
Ditson, Oliver, Boston.
Dolbear, Mrs. Alice J., College Hill.
Doliber, Thomas, Roxbury.
Doran, Enoch E., Brookline.
Doyle, William E., East Cambridge.
Duffley, Daniel, Brookline.

Eaton, Jacob, Cambridgeport.

Faxon, Edwin, Jamaica Plain.
Faxon, Marshall B., Boston.
Felton, Arthur W., West Newton.
Fenno, Warren, Revere.
Fergusson, Thomas M., Philadelphia, Pa.

Fisher, Frederick C., South Sudbury.
Fisher, Sewall, Framingham.
Forbes, William H., Jamaica Plain.
Foster, Joshua T., Medford.
Francis, George E.,M.D.,Worcester.
Frohock, Roscoe R., Malden.
Frost, Edward, Littleton.
Frost, George, West Newton.
Frost, Stiles, Newtonville.
Frost, Varnum, Belmont.
Frost, Warren S., Belmont.
Fuller, T. Otis, Needham.

Gibbon, Mrs. James A., Brookline.
Gilbert, Samuel, Boston.
Gill, Mrs. E. M., Medford.
Gill, George B., Medford.
Gleason, Herbert, Malden.
Godbold, Gustavus A., Chelsea.
Goddard, Thomas, Boston.
Gould, William P., Newtonville.
Grant, Charles E., Concord.
Gray, Howard, Dorchester.
Gray, William, Jr., Dorchester.
Grover, William O., Boston.
Guerineau, Louis, Cambridge.

Hall, Stacy, Boston.
Hall, William T., Revere.
Hamlin, Delwin A., Allston.
Hammond, Clement M., Hyde Park.
Harris, Miss Ellen M.,Jamaica Plain.
Harris, Frederick L., South Natick.
Hartwell, Samuel, Lincoln.
Harwood, George S., Newton.
Hersey, Alfred H., Hingham.
Hersey, Edmund, Hingham.
Heustis, Warren, Belmont.
Hewins, James, Medfield.
Hews, Albert H., North Cambridge.
Hill, Benjamin D., Peabody.
Hill, Edwin S., Hyde Park.
Hill, J. Willard, Belmont.
Hill, Miss Katie A., Waverly.
Hunt, Henry C., Newton.

Jameson, G. W., East Lexington.
Judkins, Rev. B., West Dedham.

Kendall, Jonas, Framingham.
Kenrick, Miss Anna C., Newton.
Kidder, Francis H., Medford.

Lamprell, Simon, Marblehead.
Lang, John H. B., Boston.
Langmaid, Mrs. Mary, Somerville.
Lee, Francis H., Salem.
Loring, Charles G., Boston.
Loring, John A., Boston.
Lothrop, David W., West Medford.
Lothrop, Thornton K., Boston.
Low, Aaron, Essex.
Lowell, John, Newton.

Manda, W. A., Cambridge.
Manning, J. Woodward, Reading.
Marcou, Mrs. J., Cambridge.
Markoe, George F. H., Roxbury.
Martin, William J., Milton.
Maxwell, Charles E., Boston.
May, F. W. G., Boston.
McDermott, Andrew, Roxbury.
McIntosh, Aaron S., Roxbury.
McLaren, Anthony, Forest Hills.
McMillan, Robert, Whitinsville.
Meriam, Horatio C., D.M.D., Salem.
Merrill, J. Warren, Cambridgeport.
Merrill, S. A., Wollaston.
Meston, Alexander, Andover.
Mills, William, Somerville.
Morandi, Francis W., Malden.
Muzzey, Rev. Artemas B., Cambridge.

Nelson, Mrs. Thomas L., Worcester.
Nightingale, Rev. Crawford, Dorchester.
Norton, Michael H., Boston.
Norton, Patrick, Boston.

O'Brien, James, Jamaica Plain.

Park, William D., Boston.
Parker, George A., Halifax.
Parker, John, Boston.
Payson, Samuel R., Boston.
Peirce, George H., Concord.
Petremant, Robert, Roxbury.
Phillips, Nathaniel, Dorchester.

Pierce, Samuel H., Lincoln.
Pitcher, James R., Short Hills, N. J.
Plimpton, Willard P., West Newton.
Power, Charles J., South Framingham.
Prince, Thomas, Roxbury.
Purdie, George A., Wellesley Hills.
Putnam, Charles A., Salem.

Randall, Macey, Sharon.
Rich, William P., Chelsea.
Richards, John S., Brookline.
Richards, Mrs. P. D., West Medford.
Richardson, E. P., Lawrence.
Richardson, Horace, M.D., Boston.
Richardson, Spencer W., Boston.
Ridler, Charles E., Boston.
Robbins, Oliver R., Weston.
Robinson, William, North Easton.
Rogers, Samuel C. B., Jamaica Plain.
Ross, Charles W., Newtonville.

Safford, Nathaniel F., Milton.
Sanders, Dr. Orren S., Boston.
Saunders, Miss Mary T., Salem.
Sawtell, J. M., Fitchburg.
Schmitt, Georg A., Wellesley.
Scott, Augustus E., Lexington.
Scott, John W., Nahant.
Scudder, Samuel H., Cambridge.
Sharples, Stephen P., Cambridge.
Shattuck, Frederick R., Roxbury.
Shedd, Abraham B., Weston.
Sheppard, Edwin, Lowell.
Sheppard, Samuel A. D., Newton.
Snow, Eugene A., Melrose.
Snow, Francis B., Dorchester.
Southworth, Edward, Quincy.
Spooner, William H., Jamaica Plain.
Squire, John P., Arlington.
Stearns, Charles H., Brookline.
Stevenson, Hamilton, Woburn.
Stone, Samuel G., Charlestown.
Storer, Charles, Natick.
Story, Miss Sarah W., Brighton.
Strahan, Thomas, Chelsea.
Swan, Charles W., M. D., Boston.

Tailby, Joseph, Wellesley.
Talbot, Josiah W., Norwood.
Teel, William H., West Acton.
Temple, Felker L., Somerville.
Terwilliger, S. F., Saratoga Springs, N. Y.
Tillinghast, Joseph, New Bedford.
Tobey, S. Edwin, Boston.
Torrey, Bradford, Boston.
Tousey, Prof. William G., College Hill.
Turner, Nathaniel W., Boston.

Van der Veur, P.W., New York, N.Y.
Vaughan, J. C., Chicago, Ill.

Walker, Joseph T., Watertown, N.Y.
Walker, William P., Somerville.
Waterer, Hosea, South Natick.
Wellington, Miss Caroline, East Lexington.
Wells, Benjamin T., Newton.
Weston, Mrs. L. P., Danvers.
Wheatland, Henry, M.D., Salem.
Whitney, Joel, Winchester.
Whiton, Starkes, Hingham Centre.
Wilmarth, Henry D., Jamaica Plain.
Wilson, B. Osgood, Watertown.
Wilson, George W., Malden.
Wolcott, Mrs. Henrietta L. T., Dedham.
Wood, Mrs. Anna D., West Newton.
Wood, E. W., West Newton.
Woodford, Joseph H., Newton.
Woolson, George C., Passaic, N. J.
Worthington, Roland, Roxbury.
Wright, Daniel, Lowell.

Zirngiebel, Denys, Needham.

EXTRACTS FROM THE CONSTITUTION AND BY-LAWS.

SECTION XXVI. — Life Members.

The payment of thirty dollars shall constitute a Life Membership, and exempt the member from all future assessments; and any member having once paid an admission fee may become a Life Member by the payment of twenty dollars in addition thereto.

SECTION XXVII. — Admission Fee and Annual Assessment.

Every subscription member, before he receives his diploma, or exercises the privileges of a member, shall pay the sum of ten dollars as an admission fee, and shall be subject afterwards to an annual assessment of two dollars.

SECTION XXIX. — Discontinuance of Membership.

Any member who shall neglect for the space of two years to pay his annual assessment shall cease to be a member of the Society, and the Treasurer shall erase his name from the List of Members. Any member may withdraw from the Society, on giving notice to the Treasurer and paying the amount due from him to the Society.

The attention of Annual Members is particularly called to Section XXIX.

HONORARY MEMBERS.

Members and correspondents of the Society and all other persons who may know of deaths, changes of residence, or other circumstances showing that the following list is inaccurate in any particular, will confer a favor by promptly communicating to the Secretary the needed corrections.

Information, or any clew to it, is especially desired in regard to Joseph Maxwell, *elected in* 1830, *and* George W. Smith, *elected in* 1851. *The names of those known to be deceased are marked with a star.*

*Benjamin Abbott, LL. D., Exeter, N. H.

*John Abbott, Brunswick, Me.

*Hon. John Quincy Adams, LL. D., late President of the United States, Quincy.

*Professor Louis Agassiz, Cambridge.

*William T. Aiton, late Curator of the Royal Gardens, Kew, England.

*Thomas Allen, late President of the St. Louis Horticultural Society, St. Louis, Mo., and Pittsfield, Mass.

*Hon. Samuel Appleton, Boston.

*Hon. James Arnold, New Bedford.

*Edward Nathaniel Bancroft, M. D., late President of the Horticultural and Agricultural Society of Jamaica.

*Hon. Philip P. Barbour, Virginia.

*Don Angel Calderon de la Barca, late Spanish Minister at Washington.

*Robert Barclay, Bury Hill, Dorking, Surrey, England.

*James Beekman, New York.

*L'Abbé Berlèse, Paris.

*Nicholas Biddle, Philadelphia.

*Dr. Jacob Bigelow, Boston.

*Mrs. Lucy Bigelow, Medford.

*Le Chevalier Soulange Bodin, late Secrétaire Général de la Société d'Horticulture de Paris.

Hon. George S. Boutwell, Groton.

*Josiah Bradlee, Boston.

*Hon. George N. Briggs, Pittsfield.

*Hon. James Buchanan, late President of the United States, Lancaster, Penn.

*Hon. Jesse Buel, late President of the Albany Horticultural Society, Albany, N. Y.

*Hon. Edmund Burke, late Commissioner of Patents, Washington, D. C.

*Augustin Pyramus de Candolle, Geneva, Switzerland.
*Hon. Horace Capron, late U. S. Commissioner of Agriculture, Washington, D. C.
*Commodore Isaac Chauncey, U. S. Navy, Brooklyn, N. Y.
*Ward Chipman, late Chief-Justice of New Brunswick, St. John.
*Lewis Clapier, Philadelphia.
*Hon. Henry Clay, Lexington, Ky.
H. W. S. Cleveland, Minneapolis, Minn.
*Admiral Sir Isaac Coffin, Bart., England.
*Zaccheus Collins, late President of the Pennsylvania Horticultural Society, Philadelphia.
*Roswell L. Colt, Paterson, N. J.
Caleb Cope, Ex-President of the Pennsylvania Horticultural Society, Philadelphia.
*William Coxe, Burlington, N. J.
*John P. Cushing, Watertown.
*Charles W. Dabney, late U. S. Consul, Fayal, Azores.
*Hon. John Davis, LL. D., Boston.
*Sir Humphry Davy, London.
*Gen. Henry Alexander Scammel Dearborn, Roxbury.
*James Dickson, late Vice-President of the Horticultural Society of London.
*Mrs. Dorothy Dix, Boston.
*Capt. Jesse D. Elliot, U. S. Navy.
*Hon. Stephen Elliot, LL. D., Charleston, S. C.
*Hon. Henry L. Ellsworth, late Commissioner of Patents, Washington, D. C.
*Allyn Charles Evanson, late Secretary of the King's County Agricultural Society, St. John, N. B.
*Hon. Edward Everett, LL. D., Boston.
*Hon. Horace Everett, Vermont.
*F. Faldermann, late Curator of the Imperial Botanic Garden, St. Petersburg.
*Hon. Millard Fillmore, late President of the United States, Buffalo, N.Y.
*Dr. F. E. Fischer, late Professor of Botany at the Imperial Botanic Garden, St. Petersburg.
*Hon. Theodore Frelinghuysen, late President of the American Agricultural Society, New Brunswick, New Jersey.
*Joseph Gales, Jr., late Vice-President of the Horticultural Society, Washington, D. C.
*George Gibbs, New York.
*Stephen Girard, Philadelphia.
*Hon. Robert T. Goldsborough, Talbot County, Maryland.
*Ephraim Goodale, South Orrington, Maine.
*Mrs. Rebecca Gore, Waltham.
*Hon. John Greig, late President of the Domestic Horticultural Society, Canandaigua, N. Y.

*Mrs. Mary Griffith, Charlieshope, N. J.
*Gen. William Henry Harrison, late President of the United States, North Bend, Ohio.
*S. P. Hildreth, M. D., Marietta, Ohio.
*Thomas Hopkirk, late President of the Glasgow Horticultural Society.
*David Hosack, M. D., late President of the New York Horticultural Society.
*Lewis Hunt, Huntsburg, Ohio.
*Joseph R. Ingersoll, late President of the Pennsylvania Horticultural Society, Philadelphia.
*Gen. Andrew Jackson, late President of the United States, Nashville, Tenn.
*Mrs. Martha Johonnot, Salem.
*Jared Potter Kirtland, M. D., LL.D., East Rockport, Ohio.
*Thomas Andrew Knight, late President of the Horticultural Society of London.
*Gen. La Fayette, La Grange, France.
*Le Comte de Lasteyrie, late Vice-President of the Horticultural Society of Paris.
L. A. H. Latour, M. P., Montreal, Canada.
*Baron Justus Liebig, Giessen, Germany.
*Professor John Lindley, late Secretary of the Horticultural Society of London.
*Franklin Litchfield, late U. S. Consul at Puerto Cabello, Venezuela.
*Joshua Longstreth, Philadelphia.
*Nicholas Longworth, Cincinnati, Ohio.
*Jacob Lorillard, late President of the New York Horticultural Society.
*John Claudius Loudon, London.
*Hon. John A. Lowell, Boston.
*Baron Charles Ferdinand Henry Von Ludwig, late Vice-President of the South African Literary and Scientific Institution, Cape Town, Cape of Good Hope.
*Hon. Theodore Lyman, Brookline.
Col. Theodore Lyman, Brookline.
*Hon. James Madison, late President of the United States, Montpelier, Va.
*Mrs. Charlotte Maryatt, Wimbledon, near London.
Joseph Maxwell, Rio Janeiro.
*D. Smith McCauley, late U. S. Consul-General at Tripoli, Philadelphia.
*Hon. Isaac McKim, late President of the Horticultural Society of Maryland, Baltimore.
Rev. James H. Means, Dorchester, Mass.
*James Mease, M. D., Philadelphia.
*Lewis John Mentens, Brussels, Belgium.
*Hon. Charles F. Mercer, Virginia.
*François André Michaux, Paris.
Donald G. Mitchell, New Haven, Conn.
*Samuel L. Mitchill, M. D., LL.D., New York.

*Hon. James Monroe, late President of the United States, Oak Hill, Va.
*Alfred S. Monson, M. D., late President of the New Haven Horticultural Society, New Haven, Conn.
*Hon. A. N. Morin, Montreal, Canada.
*Théodore Mosselmann, Antwerp, Belgium.
Baron R. Von Osten Sacken, Heidelberg, Germany.
*Baron Ottenfels, late Austrian Minister to the Ottoman Porte.
*John Palmer, Calcutta.
*Hon. Joel Parker, LL. D., Cambridge.
Samuel B. Parsons, Flushing, N. Y.
*Hon. Thomas H. Perkins, Brookline.
*Antoine Poiteau, late Professor in the Institut Horticole de Fromont.
*Hon. James K. Polk, late President of the United States, Nashville, Tenn.
*John Hare Powel, Powelton, Pa.
*Henry Pratt, Philadelphia.
*William Prince, Flushing, N. Y.
*Rev. George Putnam, D. D., Roxbury.
*Col. Joel Rathbone, late President of the Albany and Rensselaer Horticultural Society, Albany, N. Y.
*Archibald John, Earl of Roseberry, late President of the Caledonian Horticultural Society.
*Joseph Sabine, late Secretary of the Horticultural Society of London.
*Don Ramon de la Sagra, Havana, Cuba.
*Henry Winthrop Sargent, Fishkill, N. Y.
*Sir Walter Scott, Abbotsford, Scotland.
*John Shepherd, late Curator of the Botanic Garden, Liverpool, England.
*John S. Skinner, late Editor of the American Farmer, Baltimore, Md.
George W. Smith, Boston.
*Stephen H. Smith, late President of the Rhode Island Horticultural Society.
*Hon. Charles Sumner, Boston.
*Hon. John Taliaferro, Virginia.
*Gen. James Talmadge, late President of the American Institute, New York.
*Gen. Zachary Taylor, late President of the United States, Baton Rouge, La.
*James Thacher, M. D., Plymouth.
John J. Thomas, Union Springs, N. Y.
*James W. Thompson, M. D., Wilmington, Del.
*Grant Thorburn, New York.
*M. Du Petit Thouars, Paris.
*Le Vicomte Héricart De Thury, late President of the Horticultural Society of Paris.
*Mons. Tougard, late President of the Horticultural Society of Rouen, France.
*Gen. Nathan Towson, late President of the Horticultural Society, Washington, D. C.

*Hon. John Tyler, late President of the United States, Williamsburg, Va.
*Rev. Joseph Tyso, Wallingford, England.
*Hon. Martin Van Buren, late President of the United States, Kinderhook, N. Y.
*Federal Vanderburg, M. D., New York.
*Jean Baptiste Van Mons, M. D., Brussels, Belgium.
*Gen. Stephen Van Rensselaer, Albany, N. Y.
*Joseph R. Van Zandt, Albany, N. Y.
*Benjamin Vaughan, M. D., Hallowell, Me.
*Petty Vaughan, London.
*Rev. N. Villeneuve, Montreal, Canada.
*Pierre Philippe André Vilmorin, Paris.
*James Wadsworth, Geneseo, N. Y.
*Nathaniel Wallich, M. D., late Curator of the Botanic Garden, Calcutta.
*Malthus A. Ward, M. D., late Professor in Franklin College, Athens, Ga.
*Hon. Daniel Webster, Marshfield.
*Hon. John Welles, Boston.
*Jeremiah Wilkinson, Cumberland, R. I.
Hon. Robert C. Winthrop, Boston.
*Frederick Wolcott, Litchfield, Conn.
*Ashton Yates, Liverpool, England.
*Lawrence Young, late President of the Kentucky Horticultural Society, Louisville.

CORRESPONDING MEMBERS.

Members and correspondents of the Society and all other persons who may know of deaths, changes of residence, or other circumstances showing that the following list is inaccurate in any particular, will confer a favor by promptly reporting to the Secretary the needed corrections.

Information, or any clew to it, is especially desired in regard to Alexander Burton, *elected in* 1829, S. Reynolds, M. D., 1832, *and* Francis Summerest, 1833. *The names of those known to be deceased are marked with a star.*

*John Adlum, Georgetown, D. C.
*Don Francisco Aguilar y Leal, late U. S. Vice-Consul at Maldonado, Banda Oriental del Uruguay.
*Mons. Alfroy, Lieusaint, France.
*James T. Allan, late President of the Nebraska State Horticultural Society, Omaha.
A. B. Allen, New York.
*Rev. Thomas D. Anderson, D. D., South Boston.
Édouard André, Redacteur en chef de la Revue Horticole, Paris, France.
*Thomas Appleton, late U. S. Consul at Leghorn, Italy.
*Col. Thomas Aspinwall, late U. S. Consul at London, Brookline.
P. M. Augur, State Pomologist, Middlefield, Conn.
*Isaac Cox Barnet, late U. S. Consul at Paris.
Patrick Barry, Ex-First Vice-President of the American Pomological Society, Rochester, N. Y.
*Augustine Baumann, Bolwiller, Alsace.
*Eugéne Achille Baumann, Rahway, N. J.
*Joseph Bernard Baumann, Bolwiller, Alsace.
Napoleon Baumann, Bolwiller, Alsace.
D. W. Beadle, St. Catherine's, Ontario.
Professor William J. Beal, Lansing, Michigan.
*Noel J. Becar, Brooklyn, N. Y.
*Edward Beck, Worton College, Isleworth, near London.
Rev. Henry Ward Beecher, Peekskill, N. Y.
*Louis Édouard Berckmans, Rome, Ga.
Prosper J. Berckmans, Augusta, Ga.
*Alexander Bivort, late Secretary of the Société Van Mons, Fleurus, Belgium.
*Tripet Le Blanc, Paris.
Dr. Ch. Bolle, Berlin, Prussia.
*Charles D. Bragdon, Pulaski, Oswego Co., N. Y.
*William D. Brincklé, M. D., Philadelphia.

*George Brown, late U. S. Commissioner to the Sandwich Islands, Beverly.
*John W. Brown, Fort Gaines, Ga.
*Dr. Nehemiah Brush, East Florida.
*Arthur Bryant, Sr., late President of the Illinois State Horticultural Society, Princeton.
Professor J. L. Budd, Secretary of the Iowa Horticultural Society, Ames.
*Robert Buist, Philadelphia.
*Dr. E. W. Bull, Hartford, Conn.
William Bull, Chelsea, England.
Rev. Robert Burnet, Ex-President of the Ontario Fruit Growers' Association, Burlington.
Alexander Burton, United States Consul at Cadiz, Spain, Philadelphia.
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Henri Vilmorin, Secretaire de la Société Nationale d'Agriculture de France, Paris.
*Emilien de Wael, late Secretary of the Horticultural Society, Antwerp, Belgium.
*John A. Warder, M. D., late President of the Ohio State Horticultural Society, North Bend, Ohio.
Anthony Waterer, Knapp Hill, near Woking, Surrey, England.
*J. Ambrose Wight, late Editor of the Prairie Farmer, Chicago, Ill.
Benjamin Samuel Williams, Upper Holloway, London, N.
Professor John Wilson, Edinburgh University, Scotland.
*William Wilson, New York.
*Hon. J. F. Wingate, Bath, Me.
*Gen. Joshua Wingate, Portland, Me.
*Joseph Augustus Winthrop, Charleston, S. C.

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